

gtg gct ctt att ggt gta gct aca gct gca gat acc tta gtg aca aag	645
Val Ala Leu Ile Gly Val Ala Thr Ala Ala Asp Thr Leu Val Thr Lys	
83 88 93 98	
ttt aat cag ctt cct gtt gag cta aaa aag gaa gta gag atg aaa ggt	693
Phe Asn Gln Leu Pro Val Glu Leu Lys Lys Glu Val Glu Met Lys Gly	
99 104 109 114	
gtg tgg agc atg cca tca aaa tac tct gaa gaa gga gtt tat aac gtt	741
Val Trp Ser Met Pro Ser Lys Tyr Ser Glu Glu Gly Val Tyr Asn Val	
115 120 125 130	
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Gln Tyr Ser Phe Ile Lys Glu Ala Glu His His Cys Leu Leu His Ser	
131 136 141 146	
cca att cct gtg aac tgc ccc ata aga ttg ctc cat ggc atg aag gat	837
Pro Ile Pro Val Asn Cys Pro Ile Arg Leu Leu His Gly Met Lys Asp	
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gac att gta cct tgg cat aca tca atg cag gtt gcc gat cga gta ctc	885
Asp Ile Val Pro Trp His Thr Ser Met Gln Val Ala Asp Arg Val Leu	
163 168 173 178	
agc aca gat gtg gat gtc atc ctc cga aaa cac agt gat cac cga atg	933
Ser Thr Asp Val Asp Val Ile Leu Arg Lys His Ser Asp His Arg Met	
179 184 189 194	
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Arg Glu Lys Ala Asp Ile Gln Leu Leu Val Tyr Thr Ile Asp Asp Leu	
195 200 205 210	
att gat aag ctc tca act ata gtt aac tag t atcacatggt tagttggtat	1032
Ile Asp Lys Leu Ser Thr Ile Val Asn *	
211 216	
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attaataaag cgtgaatatt ttgtttttta ttatagacag aaattggtgc cttacttgt	1392
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 gatccttgcg ggccaccatt ccggaagtag aatttagagg aagaaaatac cggagttgca 180  
 gggatatagg aaattttctca aggttatagg ttggggttct tagaactttt tgtggtgtgt 240  
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 tgagcgcgac cggatatgcg cgcaggatga gcctcagggc ttctgttaag agtctgtctg 360  
 agaaagccgg tctgcgctgt tcctcgggtg cgaccttaat tatgagatga gctaatgctt 420  
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 atg cca aat gtt acc atc agc ttg agt ctc ccc acc aat gga tct cca 767  
 Met Pro Asn Val Thr Ile Ser Leu Ser Leu Pro Thr Asn Gly Ser Pro  
 1 5 10 15  
 ctt cag gat att cta gtt cac cct tgt gta act tct ctt gac tct gca 815  
 Leu Gln Asp Ile Leu Val His Pro Cys Val Thr Ser Leu Asp Ser Ala  
 17 22 27 32  
 att ctg act tct agt agt att gat gca atg gat gac tct gca ttt agt 863  
 Ile Leu Thr Ser Ser Ser Ile Asp Ala Met Asp Asp Ser Ala Phe Ser  
 33 38 43 48  
 ggg cct tac aaa ttt cca ttc act cca cct tta gag tca ttc aac tta 911  
 Gly Pro Tyr Lys Phe Pro Phe Thr Pro Pro Leu Glu Ser Phe Asn Leu  
 49 54 59 64  
 tgc ttc tac act tcc cag gtc cct gtc cca cca att ttg ggt ttt tat 959  
 Cys Phe Tyr Thr Ser Gln Val Pro Val Pro Pro Ile Leu Gly Phe Tyr  
 65 70 75 80



caa atg aag gag gaa gaa gta caa cta aga ata acc att aat tta aaa	1007
Gln Met Lys Glu Glu Glu Val Gln Leu Arg Ile Thr Ile Asn Leu Lys	
81 86 91 96	
ctt cat gaa agt gtg aaa aat aat ttt gaa ttc tgt gaa gcc cat ata	1055
Leu His Glu Ser Val Lys Asn Asn Phe Glu Phe Cys Glu Ala His Ile	
97 102 107 112	
cct ttt tac aat aga ggt cca att aca cat ttg gaa tac aaa act agt	1103
Pro Phe Tyr Asn Arg Gly Pro Ile Thr His Leu Glu Tyr Lys Thr Ser	
113 118 123 128	
ttt ggc cag ctt gaa gta ttt cga gag aaa agc tta ttg atc tgg att	1151
Phe Gly Gln Leu Glu Val Phe Arg Glu Lys Ser Leu Leu Ile Trp Ile	
129 134 139 144	
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Ile Gly Gln Lys Phe Pro Lys Ser Met Glu Ile Ser Leu Ser Gly Thr	
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Val Thr Phe Gly Ala Lys Ser His Glu Lys Gln Pro Phe Asp Pro Ile	
161 166 171 176	
tgt act gga gaa aca gca tat tta aag ctt cat ttt agg atc tta gat	1295
Cys Thr Gly Glu Thr Ala Tyr Leu Lys Leu His Phe Arg Ile Leu Asp	
177 182 187 192	
tac aca ctt act gga tgt tat gca gat cag cat tca gtt caa gtt ttt	1343
Tyr Thr Leu Thr Gly Cys Tyr Ala Asp Gln His Ser Val Gln Val Phe	
193 198 203 208	
gca tca gga aaa cca aaa ata agt gca cac cgg aaa cta att tct tct	1391
Ala Ser Gly Lys Pro Lys Ile Ser Ala His Arg Lys Leu Ile Ser Ser	
209 214 219 224	
gat tat tac atc tgg aat tct aaa gcc cct gct cca gta aca tat gga	1439
Asp Tyr Tyr Ile Trp Asn Ser Lys Ala Pro Ala Pro Val Thr Tyr Gly	
225 230 235 240	
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Ser Leu Leu Leu *	
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aaaggacatt ttaaaagcta atgtctccaa ttttggttaac cttcgatttt atgccagtat	1674
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ccactcccag tggggtgtag ataatgtgca agataaaaac tattttctct tccaaatcta	1914

agtactaagc tcctagtata aggtgttggt acagaatacc agagaccatg ttagagacaa 1974  
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 gagcgtggcg tcgggggccc ggcggcgca gtcccccttc agcatcccga acagcagcag 180  
 cggcccgtac ggctcgcagg actcgggtgca cagcagccct gaggacggcg gcggcgccg 240  
 ggaccggccg gtgggcggga gcccggcg ggcgcgctg gtgatcggct ccttaccagc 300  
 tcacctctcg ccgcac atg ttt gga gga ttt aag tgc cct gta tgc tca 349  
 Met Phe Gly Gly Phe Lys Cys Pro Val Cys Ser  
 1 5  
 aaa ttt gta tcc tca gat gaa atg gat ttg cat ctt gta atg tgt tta 397  
 Lys Phe Val Ser Ser Asp Glu Met Asp Leu His Leu Val Met Cys Leu  
 12 17 22 27  
 aca aag cca cga ata acc tat aat gag gat gta ctg agt aaa gat gct 445  
 Thr Lys Pro Arg Ile Thr Tyr Asn Glu Asp Val Leu Ser Lys Asp Ala

28	33	38	43	
ggg gaa tgt gca ata tgc ctt gaa gaa ttg cag cag gga gat act ata				493
Gly Glu Cys Ala Ile Cys Leu Glu Glu Leu Gln Gln Gly Asp Thr Ile				
44	49	54	59	
gca cga ctg cct tgt cta tgc ata tat cat aaa ggc tgc ata gat gaa				541
Ala Arg Leu Pro Cys Leu Cys Ile Tyr His Lys Gly Cys Ile Asp Glu				
60	65	70	75	
tgg ttt gaa gta aat aga tct tgc cct gag cac cct tca gat taa gcg				589
Trp Phe Glu Val Asn Arg Ser Cys Pro Glu His Pro Ser Asp *				
76	81	86		
tcagcttcct gttttatagg ttttcttgct ttgacaagat gcttgaaaaa ccaagaggat				649
atgaaaatct gtctctggag aaacaaagac gcaggcatac tcagccagaa atctgagttt				709
tgtgagactt ggtaatacag agatggacaa tcgtactggg gtaaaaaaac cctgctgaag				769
agaggacagt gaccacagaa ctcaagtgtac caaacatgca tacaaggac acacagggat				829
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tttgaggag attttatata cttttaaaaa ctgtaattta attgggatgc caggtttata				1669
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taaagtagat atgaagattt tgtaattta taatttattc atgtgttatt actgtaattg				1789
aaaatgttat agacactttt aaattcagtt tgtgtagaaa gaaatgtgtt aaacaaaatt				1849
atgttaataa atattcccac ataaaaaaaaaaaa				1883

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aaccctgagt ttctgagtca agactgagct ggtggggtgg ggaccgagta ggcgtggatg      180
gggagcccag cggccccag cggagaaaat gggtgagacg cctggggccg cggctctccag      240
aattcgcctg ggagggagag tggcgctacg gcgccatgtc catggggagc cgcttcgggc      300
tccggagtgt ccgctggggc ccgacgcttg ggtcccagc cgcggttcgc actttccagg      360
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gaggtgcggt caggcgcgga gagcggacgc ccagcgccag attctgtggg ctccggagtt      480
caggcccact gagccgcagc tgagcacagg cggggcagga aaaaggatga ggtaagtttg      540
ttcctgtcaa ttgggaaccc cctcaaccac ttccattccc caaatacctg cgctgctacc      600
gatgcctctt ggagaccaag gagttagggg gccttctggg atctgacatc tgcctcaccc      660
cagctggcag cagctgcac actctccaca aaaagaacag cagcggttct gacgtc      716
atg gtg agt gac tgc cga agt aag gag cag atg agt gat tgt tca aat      764
Met Val Ser Asp Cys Arg Ser Lys Glu Gln Met Ser Asp Cys Ser Asn
  1          5          10          15

acc cga act tct ccg gtg tct ggc ttc tgg ata ttc tct caa tac tgc      812
Thr Arg Thr Ser Pro Val Ser Gly Phe Trp Ile Phe Ser Gln Tyr Cys
  17          22          27          32

ttc ctg gat ttc tgc aat gac cct caa aac aga ggg ctg tat act cct      860
Phe Leu Asp Phe Cys Asn Asp Pro Gln Asn Arg Gly Leu Tyr Thr Pro
  33          38          43          48

tag tgtg actgcagcaa actttggtgt aaaattccac cagtttccag ccaccttcct      917
*
49

gacttctatc tgggcttggc caggacttct agtccctcat accagccctc cttgcctccc      977

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ggaagctcag ggttggactt ttgatgcctc gcaaagctgt gatacagata cttacacatc      300
taaaacagaa gctgatgaca agaacgatga aaaatgc atg aaa gtt gac tta gta      355
                               Met Lys Val Asp Leu Val
                               1

tct ttt cca tct tca cct att atg ggt gat aat gat agc tct ggt aca      403
Ser Phe Pro Ser Ser Pro Ile Met Gly Asp Asn Asp Ser Ser Gly Thr
   7                12                17                22

agt gat aag gat cat agt gaa ata ctt gat gga att agt aac ata aaa      451
Ser Asp Lys Asp His Ser Glu Ile Leu Asp Gly Ile Ser Asn Ile Lys
  23                28                33                38

ctg aat tca gag gaa gta aca cag agc caa tta gat tcc tgt aca agt      499
Leu Asn Ser Glu Glu Val Thr Gln Ser Gln Leu Asp Ser Cys Thr Ser
  39                44                49                54

cat gat ggt cat caa cag cta agt gaa gtt agt agc aaa aga gag tgc      547
His Asp Gly His Gln Gln Leu Ser Glu Val Ser Ser Lys Arg Glu Cys
  55                60                65                70

cct gct tcc ggc caa agt gaa cca cgt aat gga gga acc aat gag gaa      595
Pro Ala Ser Gly Gln Ser Glu Pro Arg Asn Gly Gly Thr Asn Glu Glu
  71                76                81                86

agc aac tca tcg ggg aat aca aac aca gac cca cca gct gag gat tca      643
Ser Asn Ser Ser Gly Asn Thr Asn Thr Asp Pro Pro Ala Glu Asp Ser
  87                92                97                102

cag aag tct tca gga gca aac aca agc aaa gac aga cca cat gcc agt      691
Gln Lys Ser Ser Gly Ala Asn Thr Ser Lys Asp Arg Pro His Ala Ser
 103                108                113                118

ggg act gat gga gat gaa agt gag gaa gac cca cct gag cat aag cca      739
Gly Thr Asp Gly Asp Glu Ser Glu Glu Asp Pro Pro Glu His Lys Pro
 119                124                129                134

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agc aaa ctg aag agg agc cat gaa ctg gac att gat gaa aac cca gct	787
Ser Lys Leu Lys Arg Ser His Glu Leu Asp Ile Asp Glu Asn Pro Ala	
135 140 145 150	
tca gac ttt gat gac agt ggt tcc ctt cta gga ttc aag tat ggc tca	835
Ser Asp Phe Asp Asp Ser Gly Ser Leu Leu Gly Phe Lys Tyr Gly Ser	
151 156 161 166	
gga caa aaa tat ggt gga atc cca aat ttc agt cat cgg cag gtc agg	883
Gly Gln Lys Tyr Gly Gly Ile Pro Asn Phe Ser His Arg Gln Val Arg	
167 172 177 182	
tat tta gag aag aat gtg aag ctt aag tct aag tac cta gac atg cgc	931
Tyr Leu Glu Lys Asn Val Lys Leu Lys Ser Lys Tyr Leu Asp Met Arg	
183 188 193 198	
aga caa ata aag atg aaa aac aaa cac atc ttc ttt acc aaa gag tca	979
Arg Gln Ile Lys Met Lys Asn Lys His Ile Phe Phe Thr Lys Glu Ser	
199 204 209 214	
gaa aaa cca ttt ttc aag aaa agc aaa att ctg agt aag gta gaa aaa	1027
Glu Lys Pro Phe Phe Lys Lys Ser Lys Ile Leu Ser Lys Val Glu Lys	
215 220 225 230	
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Phe Leu Thr Trp Val Asn Lys Pro Met Asp Glu Glu Ala Ser Gln Glu	
231 236 241 246	
tca tct tct cat gac aat ggg cac gac gct tcc aca agt tgt gat tca	1123
Ser Ser Ser His Asp Asn Gly His Asp Ala Ser Thr Ser Cys Asp Ser	
247 252 257 262	
gag gaa caa gac atg tct gtt aaa aaa ggt gat gac cta ctg gag act	1171
Glu Glu Gln Asp Met Ser Val Lys Lys Gly Asp Asp Leu Leu Glu Thr	
263 268 273 278	
aat aat cca gaa cct gaa aag tgt cag agc gta tct tca gct ggt gaa	1219
Asn Asn Pro Glu Pro Glu Lys Cys Gln Ser Val Ser Ser Ala Gly Glu	
279 284 289 294	
ctt gaa aca gaa aac tat gaa aga gac agc ttg cta gca act gtt cca	1267
Leu Glu Thr Glu Asn Tyr Glu Arg Asp Ser Leu Leu Ala Thr Val Pro	
295 300 305 310	
gat gag cag gat tgt gtt act caa gaa gtg cca gac tcc cgc cag gca	1315
Asp Glu Gln Asp Cys Val Thr Gln Glu Val Pro Asp Ser Arg Gln Ala	
311 316 321 326	
gaa act gaa gct gaa gtg aaa aag aag aag aac aag aag aag aac aaa	1363
Glu Thr Glu Ala Glu Val Lys Lys Lys Lys Asn Lys Lys Lys Asn Lys	
327 332 337 342	
aag gtg aat ggt ctg cct cct gaa ata gct gct gtt cct gag ctg gca	1411
Lys Val Asn Gly Leu Pro Pro Glu Ile Ala Ala Val Pro Glu Leu Ala	
343 348 353 358	
aaa tac tgg gcc cag agg tac agg ctc ttc tcc cgt ttt gat gat ggg	1459

Lys Tyr Trp Ala Gln Arg Tyr Arg Leu Phe Ser Arg Phe Asp Asp Gly	
359 364 369 374	
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Ile Lys Leu Asp Arg Glu Gly Trp Phe Ser Val Thr Pro Glu Lys Ile	
375 380 385 390	
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Ala Glu His Ile Ala Gly Arg Val Ser Gln Ser Phe Lys Cys Asp Val	
391 396 401 406	
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Val Val Asp Ala Phe Cys Gly Val Gly Gly Asn Thr Ile Gln Phe Ala	
407 412 417 422	
tta aca gga atg aga gtg att gcc att gat atc gat cct gtt aag att	1651
Leu Thr Gly Met Arg Val Ile Ala Ile Asp Ile Asp Pro Val Lys Ile	
423 428 433 438	
gcc ctt gct cgc aat aat gca gaa gtt tat ggg ata gca gat aag ata	1699
Ala Leu Ala Arg Asn Asn Ala Glu Val Tyr Gly Ile Ala Asp Lys Ile	
439 444 449 454	
gag ttc atc tgt gga gat ttc ttg ctg ctg gct tct ttt tta aag gct	1747
Glu Phe Ile Cys Gly Asp Phe Leu Leu Leu Ala Ser Phe Leu Lys Ala	
455 460 465 470	
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Ala Glu Thr Phe Asp Ile Arg Thr Met Met Ser Pro Asp Gly Phe Glu	
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Ile Phe Arg Leu Ser Lys Lys Ile Thr Asn Asn Ile Val Tyr Phe Leu	
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cca aga aat gct gat att gac cag gtg gca tcc tta gct ggg cct gga	1939
Pro Arg Asn Ala Asp Ile Asp Gln Val Ala Ser Leu Ala Gly Pro Gly	
519 524 529 534	
ggg caa gtg gaa ata gaa cag aac ttc ctt aac aac aaa ttg aag aca	1987
Gly Gln Val Glu Ile Glu Gln Asn Phe Leu Asn Asn Lys Leu Lys Thr	
535 540 545 550	
atc act gca tat ttt ggt gac cta att cga aga cca gcc tct gaa acc	2035
Ile Thr Ala Tyr Phe Gly Asp Leu Ile Arg Arg Pro Ala Ser Glu Thr	
551 556 561 566	
taa ctat gcagcagtgc gaggacaaaa gatcatggag tgggtcaaaat attcagatga	2092
*	
567	
gacatttggc atgtcttctt ttattcactg atatttttcta cccatgggtct tatatcacccg	2152



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 tgagacagga tctcactttt accgcccagg ctggagtgc gtgccatgat cacagctcac 2332  
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 Asp Leu Leu Gly Ala Glu Asn Arg Ala Leu Thr Gly Gly Gln Gln Ala  
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 Glu Asp Pro Thr Leu Ala Ser Gly Ala Tyr Gln Trp Pro Gly Ser Val  
 40 45 50 55  
 gag aag ctg caa ggg tca gta tgg tgt gat gct gag acg ctg ttg agc 545  
 Glu Lys Leu Gln Gly Ser Val Trp Cys Asp Ala Glu Thr Leu Leu Ser

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agc tcg agg act ggt ggg cag gct ccc cca tgg ctg aca gac cac gat				593
Ser Ser Arg Thr Gly Gly Gln Ala Pro Pro Trp Leu Thr Asp His Asp				
72	77	82	87	
gtg cag atg ctc cgt ctg ttg gca cag ggg gag gtg gtg gac aaa gcc				641
Val Gln Met Leu Arg Leu Leu Ala Gln Gly Glu Val Val Asp Lys Ala				
88	93	98	103	
agg gtc ccc gcc cat ggg cag gtg cta cag gtt ggc ttc tcc act gag				689
Arg Val Pro Ala His Gly Gln Val Leu Gln Val Gly Phe Ser Thr Glu				
104	109	114	119	
gct gcc ctt cag gac ctg tcc tct ccc agg ctc agc caa ctc tgt tcc				737
Ala Ala Leu Gln Asp Leu Ser Ser Pro Arg Leu Ser Gln Leu Cys Ser				
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caa ggg ctc tgt ggc ctg atc aag agg cct ggg gac ctg cct gag gtc				785
Gln Gly Leu Cys Gly Leu Ile Lys Arg Pro Gly Asp Leu Pro Glu Val				
136	141	146	151	
ctg tcc ttc cac gta gat cgt gtg ctg ggg ctg cgc cgg agc cta cct				833
Leu Ser Phe His Val Asp Arg Val Leu Gly Leu Arg Arg Ser Leu Pro				
152	157	162	167	
gct gtg gcc cgc cgc ttc cat agc ccc ctc ctg ccc tac cga tac aca				881
Ala Val Ala Arg Arg Phe His Ser Pro Leu Leu Pro Tyr Arg Tyr Thr				
168	173	178	183	
gac ggt gga gca agg cct gtc atc tgg tgg gcg ccc gat gtg cag cac				929
Asp Gly Gly Ala Arg Pro Val Ile Trp Trp Ala Pro Asp Val Gln His				
184	189	194	199	
ctg agc gac cca gat gag gat cag aac tct ctg gcc ttg ggc tgg ctg				977
Leu Ser Asp Pro Asp Glu Asp Gln Asn Ser Leu Ala Leu Gly Trp Leu				
200	205	210	215	
cag tat cag gcc ctg ctg gca cac agc tgc aac tgg cca ggc cag gcc				1025
Gln Tyr Gln Ala Leu Leu Ala His Ser Cys Asn Trp Pro Gly Gln Ala				
216	221	226	231	
ccg tgc ccg ggc atc cac cat acc gag tgg gca cgc ctg gcg ctc ttc				1073
Pro Cys Pro Gly Ile His His Thr Glu Trp Ala Arg Leu Ala Leu Phe				
232	237	242	247	
gac ttc ctg ttg cag gtc cac gac cgc ttg gat cgc tac tgc tgt ggc				1121
Asp Phe Leu Leu Gln Val His Asp Arg Leu Asp Arg Tyr Cys Cys Gly				
248	253	258	263	
ttc gag cct gag ccc tca gac ccc tgt gtg gaa gag agg ctc cga gag				1169
Phe Glu Pro Glu Pro Ser Asp Pro Cys Val Glu Glu Arg Leu Arg Glu				
264	269	274	279	
aaa tgc cgg aac cca gcc gag ctg cgg ctg gtc cac atc ctg gtc cgg				1217
Lys Cys Arg Asn Pro Ala Glu Leu Arg Leu Val His Ile Leu Val Arg				
280	285	290	295	

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Ser Ser Asp Pro Ser His Leu Val Tyr Ile Asp Asn Ala Gly Asn Leu	
296 301 306 311	
cag cac cct gag gac aag ctg aac ttt cgg ctg ctg gag ggc ata gat	1313
Gln His Pro Glu Asp Lys Leu Asn Phe Arg Leu Leu Glu Gly Ile Asp	
312 317 322 327	
ggg ttt cct gag tct gcc gtg aag gtt ctc gca tca ggg tgt ctg cag	1361
Gly Phe Pro Glu Ser Ala Val Lys Val Leu Ala Ser Gly Cys Leu Gln	
328 333 338 343	
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Asn Met Leu Leu Lys Ser Leu Gln Met Asp Pro Val Phe Trp Glu Ser	
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Gln Gly Gly Ala Gln Gly Leu Lys Gln Val Leu Gln Thr Leu Glu Gln	
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Arg Gly Gln Val Leu Leu Gly His Ile Gln Lys His Asn Leu Thr Leu	
376 381 386 391	
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Phe Arg Asp Glu Asp Pro *	
392 397	
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tgatgcacgt gcatatgcag agtgggagaa ctttgtgtgt gtgtagaggt gtgtaggtgt	1858
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tgctg 2823

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tggatgaatgc cctggagttg tgagggtgtg agggtcgctg tctgctgtc tggacttttt 180  
ctgtcccact gagacgcagc tgtattctgt ttgcagtgtg aaat atg att tgg cga 236  
Met Ile Trp Arg  
1

gga aga tca aca tat agg cct agg ccg agg aga agt gta cca cct cct 284  
Gly Arg Ser Thr Tyr Arg Pro Arg Pro Arg Arg Ser Val Pro Pro Pro  
5 10 15 20

gag ctg att ggg cct atg ctg gag ccc ggt gat gag gag cct cag caa 332  
Glu Leu Ile Gly Pro Met Leu Glu Pro Gly Asp Glu Glu Pro Gln Gln  
21 26 31 36

gag gaa cca cca act gaa agt cgg gat cct gca cct ggt cag gag aga 380  
Glu Glu Pro Pro Thr Glu Ser Arg Asp Pro Ala Pro Gly Gln Glu Arg  
37 42 47 52

gaa gaa gat cag ggt gca gct gag act caa gtg cct gac ctg gaa gct 428  
Glu Glu Asp Gln Gly Ala Ala Glu Thr Gln Val Pro Asp Leu Glu Ala  
53 58 63 68

gat ctc cag gag ctg tct cag tca aag act ggg ggt gaa tgt gga aat 476  
Asp Leu Gln Glu Leu Ser Gln Ser Lys Thr Gly Gly Glu Cys Gly Asn

69	74	79	84	
ggt cct gat gac cag ggg aag att ctg cca aaa tca gaa caa ttt aaa				524
Gly Pro Asp Asp Gln Gly Lys Ile Leu Pro Lys Ser Glu Gln Phe Lys				
85	90	95	100	
atg cca gaa gga ggt gac agg caa cca cag gtt taa atga agacaagctg				574
Met Pro Glu Gly Gly Asp Arg Gln Pro Gln Val *				
101	106	111		
aaacaacaca aaactgtttt tatctaagat atttgactta aaaatatoga aataaacttt				634
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tgc acc cac gcg tcc gcg gac gcg tgg gcg cac acc ttc ctc atc cac	95	
Ser Thr His Ala Ser Ala Asp Ala Trp Ala His Thr Phe Leu Ile His		
16	21 26 31	
agc tat aca cgg ccc acc gtt tgc cag gct tgc aag aaa ctc ctc aag	143	
Ser Tyr Thr Arg Pro Thr Val Cys Gln Ala Cys Lys Lys Leu Leu Lys		
32	37 42 47	
ggc ctc ttc cgg cag ggc ctg caa tgc aaa gac tgc aag ttt aac tgt	191	
Gly Leu Phe Arg Gln Gly Leu Gln Cys Lys Asp Cys Lys Phe Asn Cys		
48	53 58 63	
cac aaa cgc tgc gcc acc cgc gtc cct aat gac tgc ctg ggg gag gcc	239	
His Lys Arg Cys Ala Thr Arg Val Pro Asn Asp Cys Leu Gly Glu Ala		
64	69 74 79	
ctt atc aat gga gat gtg ccg atg gag gag gcc acc gat ttc agc gag	287	
Leu Ile Asn Gly Asp Val Pro Met Glu Glu Ala Thr Asp Phe Ser Glu		
80	85 90 95	
gct gac aag agc gcc ctc atg gat gag tca gag gac tcc ggt gtc atc	335	
Ala Asp Lys Ser Ala Leu Met Asp Glu Ser Glu Asp Ser Gly Val Ile		
96	101 106 111	
cct ggc tcc cac tca gag aat gcg ctc cac gcc agt gag gag gag gaa	383	
Pro Gly Ser His Ser Glu Asn Ala Leu His Ala Ser Glu Glu Glu Glu		

112	117	122	127	
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Gly Glu Gly Gly Lys Ala Gln Ser Ser Leu Gly Tyr Ile Pro Leu Met				
128	133	138	143	
agg gtg gtg caa tcc gtg cga cac acg acg cgg aaa tcc agc acc acg				479
Arg Val Val Gln Ser Val Arg His Thr Thr Arg Lys Ser Ser Thr Thr				
144	149	154	159	
ctg cgg gag ggt tgg gtg gtt cat tac agc aac aag gac acg ctg aga				527
Leu Arg Glu Gly Trp Val Val His Tyr Ser Asn Lys Asp Thr Leu Arg				
160	165	170	175	
aag cgg cac tat tgg cgc ctg gac tgc aag tgt atc acg ctc ttc cag				575
Lys Arg His Tyr Trp Arg Leu Asp Cys Lys Cys Ile Thr Leu Phe Gln				
176	181	186	191	
aac aac acg acc aac aga tac tat aag gaa att ccg ctg tca gaa atc				623
Asn Asn Thr Thr Asn Arg Tyr Tyr Lys Glu Ile Pro Leu Ser Glu Ile				
192	197	202	207	
ctc acg gtg gag tcc gcc cag aac ttc agc ctt gtg ccg ccg ggc acc				671
Leu Thr Val Glu Ser Ala Gln Asn Phe Ser Leu Val Pro Pro Gly Thr				
208	213	218	223	
aac cca cac tgc ttt gag atc gtc act gcc aat gcc acc tac ttc gtg				719
Asn Pro His Cys Phe Glu Ile Val Thr Ala Asn Ala Thr Tyr Phe Val				
224	229	234	239	
ggc gag atg cct ggc ggg act ccg ggt ggg cca agt ggg cag ggg gct				767
Gly Glu Met Pro Gly Gly Thr Pro Gly Gly Pro Ser Gly Gln Gly Ala				
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gag gcc gcc cgg ggc tgg gag aca gcc atc cgc cag gcc ctg atg ccc				815
Glu Ala Ala Arg Gly Trp Glu Thr Ala Ile Arg Gln Ala Leu Met Pro				
256	261	266	271	
gtc atc ctt cag gac gca ccc agc gcc cca ggc cac gcg ccc cac aga				863
Val Ile Leu Gln Asp Ala Pro Ser Ala Pro Gly His Ala Pro His Arg				
272	277	282	287	
caa gct tct ctg agc atc tct gtg tcc aac agt cag atc caa gag aat				911
Gln Ala Ser Leu Ser Ile Ser Val Ser Asn Ser Gln Ile Gln Glu Asn				
288	293	298	303	
gtg gac att gcc act gtc tac cag atc ttc cct gac gaa gtg ctg ggc				959
Val Asp Ile Ala Thr Val Tyr Gln Ile Phe Pro Asp Glu Val Leu Gly				
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tca ggg cag ttt gga gtg gtc tat gga gga aaa cac cgg aag aca ggc				1007
Ser Gly Gln Phe Gly Val Val Tyr Gly Gly Lys His Arg Lys Thr Gly				
320	325	330	335	
cgg gac gtg gca gtt aag gtc att gac aaa ctg cgc ttc cct acc aag				1055
Arg Asp Val Ala Val Lys Val Ile Asp Lys Leu Arg Phe Pro Thr Lys				
336	341	346	351	

cag gag agc cag ctc cgg aat gaa gtg gcc att ctg cag agc ctg cgg	1103
Gln Glu Ser Gln Leu Arg Asn Glu Val Ala Ile Leu Gln Ser Leu Arg	
352 357 362 367	
cat ccc ggg atc gtg aac ctg gag tgc atg ttc gag acg cct gag aaa	1151
His Pro Gly Ile Val Asn Leu Glu Cys Met Phe Glu Thr Pro Glu Lys	
368 373 378 383	
gtg ttt gtg gtg atg gag aag ctg cat ggg gac atg ttg gag atg atc	1199
Val Phe Val Val Met Glu Lys Leu His Gly Asp Met Leu Glu Met Ile	
384 389 394 399	
ctg tcc agt gag aag ggc cgg ctg cct gag cgc ctc acc aag ttc ctc	1247
Leu Ser Ser Glu Lys Gly Arg Leu Pro Glu Arg Leu Thr Lys Phe Leu	
400 405 410 415	
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Ile Thr Gln Ile Leu Val Ala Leu Arg His Leu His Phe Lys Asn Ile	
416 421 426 431	
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Val His Cys Asp Leu Lys Pro Glu Asn Val Leu Leu Ala Ser Ala Asp	
432 437 442 447	
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Pro Phe Pro Gln Val Lys Leu Cys Asp Phe Gly Phe Ala Arg Ile Ile	
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Gly Glu Lys Ser Phe Arg Arg Ser Val Val Gly Thr Pro Ala Tyr Leu	
464 469 474 479	
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Ala Pro Glu Val Leu Leu Asn Gln Gly Tyr Asn Arg Ser Leu Asp Met	
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Trp Ser Val Gly Val Ile Met Tyr Val Ser Leu Ser Gly Thr Phe Pro	
496 501 506 511	
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Phe Asn Glu Asp Glu Asp Ile Asn Asp Gln Ile Gln Asn Ala Ala Phe	
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Met Tyr Pro Ala Ser Pro Trp Ser His Ile Ser Ala Gly Ala Ile Asp	
528 533 538 543	
ctc atc aac aac ctg ctg cag gtg aag atg cgc aaa cgc tac agc gtg	1679
Leu Ile Asn Asn Leu Leu Gln Val Lys Met Arg Lys Arg Tyr Ser Val	
544 549 554 559	
gac aaa tct ctc agc cac ccc tgg tta cag gag tac cag acg tgg ctg	1727
Asp Lys Ser Leu Ser His Pro Trp Leu Gln Glu Tyr Gln Thr Trp Leu	
560 565 570 575	

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Asp Leu Arg Glu Leu Glu Gly Lys Met Gly Glu Arg Tyr Ile Thr His
576                      581                      586                      591

gag agt gac gac gcg cgc tgg gag cag ttt gca gca gag cat ccg ctg      1823
Glu Ser Asp Asp Ala Arg Trp Glu Gln Phe Ala Ala Glu His Pro Leu
592                      597                      602                      607

cct ggg tct ggg ctg ccc acg gac agg gat ctc ggt ggg gcc tgt cca      1871
Pro Gly Ser Gly Leu Pro Thr Asp Arg Asp Leu Gly Gly Ala Cys Pro
608                      613                      618                      623

cca cag gac cac gac atg cag ggg ctg gcg gag cgc atc agt gtt ctc      1919
Pro Gln Asp His Asp Met Gln Gly Leu Ala Glu Arg Ile Ser Val Leu
624                      629                      634                      639

tga ggtc ctgtgccctc gtccagctgc tgccctccac agcggttctt cacaggatcc      1976
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640

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agtgggggtgg ggggagctat ttccaaggcc cctccctgtt tccccagcaa ttaaaacgga      2096

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ggccgggatc cggagccgcc cgaagccggt gccgcagccc cctgcgcccc cggtgcccc      300

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Met Ser Phe Arg Lys Val Val Arg Gln Ser Lys Phe Arg His Val
1          5          10

ttc ggg cag ccg gtc aag aac gac cag tgc tat gag gac att cgc gtg      396
Phe Gly Gln Pro Val Lys Asn Asp Gln Cys Tyr Glu Asp Ile Arg Val
16          21          26          31

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32 37 42 47	
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Leu Ala Val Ile Val Glu Ala Ser Gly Gly Gly Ala Phe Leu Val Leu	
48 53 58 63	
ccc cta agc aag acg ggc cgc att gac aag gcc tac ccg acg gtg tgt	540
Pro Leu Ser Lys Thr Gly Arg Ile Asp Lys Ala Tyr Pro Thr Val Cys	
64 69 74 79	
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Gly His Thr Gly Pro Val Leu Asp Ile Asp Trp Cys Pro His Asn Asp	
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Glu Val Ile Ala Ser Gly Ser Glu Asp Cys Thr Val Met Val Trp Gln	
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Ile Pro Glu Asn Gly Leu Thr Ser Pro Leu Thr Glu Pro Val Val Val	
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Leu Glu Gly His Thr Lys Arg Val Gly Ile Ile Ala Trp His Pro Thr	
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Ala Arg Asn Val Leu Leu Ser Ala Gly Cys Asp Asn Val Val Leu Ile	
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Trp Asn Val Gly Thr Ala Glu Glu Leu Tyr Arg Leu Asp Ser Leu His	
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Pro Asp Leu Ile Tyr Asn Val Ser Trp Asn His Asn Gly Ser Leu Phe	
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Cys Ser Ala Cys Lys Asp Lys Ser Val Arg Ile Ile Asp Pro Arg Arg	
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240 245 250 255	
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Ile His Phe Leu Asn Thr Phe Thr Ser Lys Glu Pro Gln Arg Gly Met	
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Gly Ser Met Pro Lys Arg Gly Leu Glu Val Ser Lys Cys Glu Ile Ala	
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Arg Phe Tyr Lys Leu His Glu Arg Lys Cys Glu Pro Ile Val Met Thr	
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Val Pro Arg Lys Ser Asp Leu Phe Gln Asp Asp Leu Tyr Pro Asp Thr	
352 357 362 367	
gcc ggg ccc gag gca gcc ctg gag gct gag gag tgg gtg agc ggg cgg	1452
Ala Gly Pro Glu Ala Ala Leu Glu Ala Glu Glu Trp Val Ser Gly Arg	
368 373 378 383	
gat gcc gac ccg atc ctc atc tca ctg cgg gag gcc tac gtg ccc agc	1500
Asp Ala Asp Pro Ile Leu Ile Ser Leu Arg Glu Ala Tyr Val Pro Ser	
384 389 394 399	
aag cag cgg gac ctg aag atc agc cgg cgc aac gtg ttg tct gac agc	1548
Lys Gln Arg Asp Leu Lys Ile Ser Arg Arg Asn Val Leu Ser Asp Ser	
400 405 410 415	
cgg ccc gcc atg gcc ccg ggc tcc tcc cac tta ggg gcc ccc gcc tcc	1596
Arg Pro Ala Met Ala Pro Gly Ser Ser His Leu Gly Ala Pro Ala Ser	
416 421 426 431	
aac aac aat gct gct gat gcc acc ccc agc ggc agc ctg gcc aga gcc	1644
Asn Asn Asn Ala Ala Asp Ala Thr Pro Ser Gly Ser Leu Ala Arg Ala	
432 437 442 447	
ggg gag gct ggg aag ctg gag gag gtg atg cag gag ctg cgg gcc ctg	1692
Gly Glu Ala Gly Lys Leu Glu Glu Val Met Gln Glu Leu Arg Ala Leu	
448 453 458 463	
agg gcg ctg tgg agg atg tat acg ccc agg cga gct cct cga cct gtg	1740
Arg Ala Leu Trp Arg Met Tyr Thr Pro Arg Arg Ala Pro Arg Pro Val	
464 469 474 479	
agg gac cat ctc ccc gac cac tgc cca gac ctc tgc tcc ctc ccc aga	1788
Arg Asp His Leu Pro Asp His Cys Pro Asp Leu Cys Ser Leu Pro Arg	

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2063

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143 148 153 158	
att ttt cca gaa ggt aca agg tat aat cca gag caa aca aaa gtc ctt	587
Ile Phe Pro Glu Gly Thr Arg Tyr Asn Pro Glu Gln Thr Lys Val Leu	
159 164 169 174	
tca gct agt cag gca ttt gct gcc caa cgt ggc ctt gca gta tta aaa	635
Ser Ala Ser Gln Ala Phe Ala Ala Gln Arg Gly Leu Ala Val Leu Lys	
175 180 185 190	
cat gtg cta aca cca cga ata aag gca act cac gtt gct ttt gat tgc	683
His Val Leu Thr Pro Arg Ile Lys Ala Thr His Val Ala Phe Asp Cys	
191 196 201 206	
atg aag aat tat tta gat gca att tat gat gtt acg gtg gtt tat gaa	731
Met Lys Asn Tyr Leu Asp Ala Ile Tyr Asp Val Thr Val Val Tyr Glu	
207 212 217 222	
ggg aaa gac gat gga ggg cag cga aga gag tca ccg acc atg acg gaa	779
Gly Lys Asp Asp Gly Gly Gln Arg Arg Glu Ser Pro Thr Met Thr Glu	
223 228 233 238	
ttt ctc tgc aaa gaa tgt cca aaa att cat att cac att gat cgt atc	827
Phe Leu Cys Lys Glu Cys Pro Lys Ile His Ile His Ile Asp Arg Ile	
239 244 249 254	
gac aaa aaa gat gtc cca gaa gaa caa gaa cat atg aga aga tgg ctg	875
Asp Lys Lys Asp Val Pro Glu Glu Gln Glu His Met Arg Arg Trp Leu	
255 260 265 270	
cat gaa cgt ttc gaa atc aaa gat aag atg ctt ata gaa ttt tat gag	923
His Glu Arg Phe Glu Ile Lys Asp Lys Met Leu Ile Glu Phe Tyr Glu	
271 276 281 286	
tca cca gat cca aaa aaa aaa aaa aga ttt cct ggg aaa agt gtt aat	971
Ser Pro Asp Pro Lys Lys Lys Lys Arg Phe Pro Gly Lys Ser Val Asn	
287 292 297 302	
tcc aaa tta agt atc aag aag act tta cca tca atg ttg atc tta agt	1019
Ser Lys Leu Ser Ile Lys Lys Thr Leu Pro Ser Met Leu Ile Leu Ser	
303 308 313 318	
ggt ttg act gca ggc atg ctt atg acc gat gct gga agg aag ctg tat	1067
Gly Leu Thr Ala Gly Met Leu Met Thr Asp Ala Gly Arg Lys Leu Tyr	
319 324 329 334	
gtg aac acc tgg ata tat gga acc cta ctt ggc tgc ctg tgg gtt act	1115
Val Asn Thr Trp Ile Tyr Gly Thr Leu Leu Gly Cys Leu Trp Val Thr	
335 340 345 350	
att aaa gca tag aca agtagctgtc tccagacagt gggatgtgct acattgtcta	1170
Ile Lys Ala *	
351	

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tttttggcgg ctgcacatga catcaaattg tttcctgaat ttattaagga gtgtaaataa 1230
agccttggtg attgaagatt ggataataga atttgtgacg aaagctgata tgcaatggtc 1290
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atggggaaaa agctctgttt agcacatgat tttattgtat tgcgttatta gctgatttta 1710
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gggtgtgaagc tgtaaaaggg accattatgt ttccgattca gaatatatat tcttctctca 180
ctttctaaga attaaacaca agcttttctc ccttattgat tagttgctga agtaaaggaa 240
ccctgcagcc ttccc atg cta tct gtt gac atg gaa aac aag gaa aat ggc 291
          Met Leu Ser Val Asp Met Glu Asn Lys Glu Asn Gly
          1             5             10

tct gtc ggt gta aaa aat tcc atg gaa aat ggg aga cca cct gat cct 339
Ser Val Gly Val Lys Asn Ser Met Glu Asn Gly Arg Pro Pro Asp Pro
13             18             23             28

gca gac tgg gcc gtg atg gat gtc gtc aat tat ttc cga acc gtg gga 387
Ala Asp Trp Ala Val Met Asp Val Val Asn Tyr Phe Arg Thr Val Gly
29             34             39             44

ttt gag gag caa gct agt gct ttt cag gaa cag gaa att gat gga aaa 435
Phe Glu Glu Gln Ala Ser Ala Phe Gln Glu Gln Glu Ile/Asp Gly Lys
45             50             55             60

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tcc ctg cta ttg atg aca aga aat gat gtg ttg aca gga ctt cag tta	483
Ser Leu Leu Leu Met Thr Arg Asn Asp Val Leu Thr Gly Leu Gln Leu	
61 66 71 76	
aaa ttg ggg cct gct ctg aaa atc tac gaa tat cat gta aaa cct ctg	531
Lys Leu Gly Pro Ala Leu Lys Ile Tyr Glu Tyr His Val Lys Pro Leu	
77 82 87 92	
cag aca aag cat tta aag aac aac tct tca tag tacagtca aattgggggtc	582
Gln Thr Lys His Leu Lys Asn Asn Ser Ser *	
93 98 103	
ttcgacctca aaaaaataca taatgacata atttagtttc atgtaatgaa actttgtaaa	642
cagaatacat acatgtgtat atgtaaagaa tttcaatcaa atgaaacggt atcctattgg	702
atagactagg caattcatca gctcacctga aatcagccag gaggagcaag gacaagatgc	762
gcacaggggtg gttttcctca tggattttgt caaatagatg atctttgaca cgattagaca	822
ctcctcccca caaaggcttt gaaatcataa ggattttcct catctcttta tagctttccc	882
aaaatctttt aaaaaagaat ttaattaaat gacagtcttt tgggttacaga cttaggatga	942
gtaaaaacaa gaaaatttgg ggagggggag aaagaagaaa gggattgctg tctcccttga	1002
attcctctgt tccttagagc ttgtgttact tggacggaat tgccaacacc cttttttata	1062
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cttgttacta gtacagaata tttttatata tattccttca tgatggtgta atttttttta	1422
attgtcctat gctttgttcg gttcctgggt taagtacttg tttttaagag cttggaaaaa	1482
gtgggcttgc tacatctctg ttcaaagaga catttgttca atctctgtgt gtcaacgcct	1542
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Met Glu Thr His Val Lys Thr  
1 5

aag cat gcc aat ctt tta gac att cca ttg gaa gac tgt gat caa cca 159  
Lys His Ala Asn Leu Leu Asp Ile Pro Leu Glu Asp Cys Asp Gln Pro  
8 13 18 23

ctc tat gat tgt cct atg tgt ggg ctc ata tgt aca aat tac cat att 207  
Leu Tyr Asp Cys Pro Met Cys Gly Leu Ile Cys Thr Asn Tyr His Ile  
24 29 34 39

ctt cag gaa cat gtt gac ttg cat ttg gaa gaa aac agc ttt cag caa 255  
Leu Gln Glu His Val Asp Leu His Leu Glu Glu Asn Ser Phe Gln Gln  
40 45 50 55

ggc atg gat aga gtc cag tgt tct ggt gat cta caa ttg gct cac cag 303  
Gly Met Asp Arg Val Gln Cys Ser Gly Asp Leu Gln Leu Ala His Gln  
56 61 66 71

ctt cag caa gaa gaa gac aga aag agg aga tct gaa gaa tca aga caa 351  
Leu Gln Gln Glu Glu Asp Arg Lys Arg Arg Ser Glu Glu Ser Arg Gln  
72 77 82 87

gaa ata gaa gaa ttt cag aag ctg cag aga caa tat ggt tta gat aat 399  
Glu Ile Glu Glu Phe Gln Lys Leu Gln Arg Gln Tyr Gly Leu Asp Asn  
88 93 98 103

tct gga gga tac aaa caa caa caa cta cga aat atg gag ata gaa gta 447  
Ser Gly Gly Tyr Lys Gln Gln Gln Leu Arg Asn Met Glu Ile Glu Val  
104 109 114 119

aat agg gga aga atg cct cca tct gaa ttt cat agg aga aaa gct gat 495  
Asn Arg Gly Arg Met Pro Pro Ser Glu Phe His Arg Arg Lys Ala Asp  
120 125 130 135

atg atg gaa tca tta gct ctt ggt ttt gac gat gga aaa aca aaa act 543  
Met Met Glu Ser Leu Ala Leu Gly Phe Asp Asp Gly Lys Thr Lys Thr  
136 141 146 151

tcc gga att att gaa gca ctt cat agg tat tat cag aat gct gcc aca 591  
Ser Gly Ile Ile Glu Ala Leu His Arg Tyr Tyr Gln Asn Ala Ala Thr  
152 157 162 167

gat gtg aga cgg gtg tgg ctt tct tca gtg gtg gat cac ttt cat tca 639  
Asp Val Arg Arg Val Trp Leu Ser Ser Val Val Asp His Phe His Ser  
168 173 178 183

tct tta ggc gac aaa ggt tgg ggt tgt ggt tac aga aat ttc caa atg 687  
Ser Leu Gly Asp Lys Gly Trp Gly Cys Gly Tyr Arg Asn Phe Gln Met  
184 189 194 199

cta ctt tca tca tta tta caa aat gat gct tac aac gat tgc tta aaa 735

Leu	Leu	Ser	Ser	Leu	Leu	Gln	Asn	Asp	Ala	Tyr	Asn	Asp	Cys	Leu	Lys	
200					205					210					215	
ggg	atg	ttg	att	cct	tgc	att	cca	aaa	att	caa	tct	atg	att	gaa	gat	783
Gly	Met	Leu	Ile	Pro	Cys	Ile	Pro	Lys	Ile	Gln	Ser	Met	Ile	Glu	Asp	
216					221					226				231		
gca	tgg	aag	gaa	ggg	ttt	gat	oct	cag	ggg	gcc	tct	caa	ctt	att	atc	831
Ala	Trp	Lys	Glu	Gly	Phe	Asp	Pro	Gln	Gly	Ala	Ser	Gln	Leu	Ile	Ile	
232					237					242				247		
agg	tta	cag	gga	aca	aag	gcc	tgg	att	gga	gca	tgt	gaa	gta	tat	ata	879
Arg	Leu	Gln	Gly	Thr	Lys	Ala	Trp	Ile	Gly	Ala	Cys	Glu	Val	Tyr	Ile	
248					253					258				263		
ctc	ctg	acc	tct	cta	agg	gtt	tag	tgtcttattg	ttggattttc	actg						927
Leu	Leu	Thr	Ser	Leu	Arg	Val	*									
264					269											

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atg	cta	acg	cta	gca	agt	167
Met	Leu	Thr	Leu	Ala	Ser	
1		5		10	15	
tcc	cgg	acg	gca	gcc	aca	215
Ser	Arg	Thr	Ala	Ala	Thr	
17			22		27	32
aga	gac	aaa	ttg	ctt	gtt	263
Arg	Asp	Lys	Leu	Leu	Val	
33			38		43	48
cct	tgt	aca	tgt	aaa	gta	311
Pro	Cys	Thr	Cys	Lys	Val	
49			54		59	64
ttt	cag	cta	aca	gta	acc	359
Phe	Gln	Leu	Thr	Val	Thr	
65			70		75	80
gat	ctg	gca	ccc	caa	cat	407



Asp Leu Ala Pro Gln His His Arg Asp Arg Gly Asn Met Ser Glu Phe  
81 86 91 96

att gag aga aca ttc aat tga tg gcaactggctg ggctcccaca agaacattaa 460  
Ile Glu Arg Thr Phe Asn \*  
97 102

aggatgtcgt ttggggatta aactctttgt ttactgatct tttgaatttt gatgatccac 520

tgaatattga agctgcagaa catcatttgc gggacaagga ggacttccgg aataaagtgg 580

atgactacat caaacgttat gccagatgat aaaaggggac gattgcaggc ccatggactg 640

tgttacagtt tgtctctaac atgaaacagc aagaggtagc cccctctccc gtcctcatgc 700

tccctctcag tcccctggat tgccccagtc ctgtgaccat gttgcctga agaagaccat 760

cttcatgact gctcattgta gatggagaat tcaacataaa tacagcaaga aaatgtgaaa 820

aaaaaaaaa 829

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<211> 2052

<212> DNA

<213> Homo sapiens

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ccccgtcggg cccatggttt ccagtgcagc gcggagtggg cgatgccagc gtgccaggag 180

ccatgtctga ccaggacgtt tggaagatca tatccatgcc agaggctctt gtgaggagat 240

gagttggtaa agagagaggc tggg atg aag atg ctg cca gga gtg ggc gtg 291  
Met Lys Met Leu Pro Gly Val Gly Val  
1 5

ttt ggg act ggc agc tcc gcc cga gtt ctg gtc cca ctg ctg agg gca 339  
Phe Gly Thr Gly Ser Ser Ala Arg Val Leu Val Pro Leu Leu Arg Ala  
10 15 20 25

gaa ggg ttc act gtt gag gcc ctg tgg ggg aag act gag gag gag gcg 387  
Glu Gly Phe Thr Val Glu Ala Leu Trp Gly Lys Thr Glu Glu Ala  
26 31 36 41

aag cag ctt gct gag gag atg aac atc gcc ttc tac acc/agc cgg act 435  
Lys Gln Leu Ala Glu Glu Met Asn Ile Ala Phe Tyr Thr Ser Arg Thr  
42 47 52 57

gat gac atc ttg ctg cat caa gat gtg gat ctg gtg tgc atc agc atc	483
Asp Asp Ile Leu Leu His Gln Asp Val Asp Leu Val Cys Ile Ser Ile	
58 63 68 73	
ccc cct cca ctc acc cgg cag ata tcc gtg aag gct cta ggt att ggg	531
Pro Pro Pro Leu Thr Arg Gln Ile Ser Val Lys Ala Leu Gly Ile Gly	
74 79 84 89	
aag aat gtg gtt tgc gag aag gca gca aca tcg gtg gat gcc ttc cgg	579
Lys Asn Val Val Cys Glu Lys Ala Ala Thr Ser Val Asp Ala Phe Arg	
90 95 100 105	
atg gtg aca gcc tcg cgc tac tac ccg cag ctc atg agc ctg gta ggg	627
Met Val Thr Ala Ser Arg Tyr Tyr Pro Gln Leu Met Ser Leu Val Gly	
106 111 116 121	
aac gtg ctg cgc ttc ctg cct gcc ttc gtg cgc atg aaa cag ctg att	675
Asn Val Leu Arg Phe Leu Pro Ala Phe Val Arg Met Lys Gln Leu Ile	
122 127 132 137	
tcg gaa cac tat gtg gga gcg gtg atg atc tgt gat gcc cgc atc tac	723
Ser Glu His Tyr Val Gly Ala Val Met Ile Cys Asp Ala Arg Ile Tyr	
138 143 148 153	
tca ggc agc ctg ctg agc ccc agc tat ggc tgg atc tgt gat gag ctc	771
Ser Gly Ser Leu Leu Ser Pro Ser Tyr Gly Trp Ile Cys Asp Glu Leu	
154 159 164 169	
atg ggc ggg ggg ggc ttg cac acc atg ggg acc tac att gtg gac ctg	819
Met Gly Gly Gly Gly Leu His Thr Met Gly Thr Tyr Ile Val Asp Leu	
170 175 180 185	
ctg acc cac ctg acc ggc cgg aga gcc gag aag gtg cac ggg ctg ctc	867
Leu Thr His Leu Thr Gly Arg Arg Ala Glu Lys Val His Gly Leu Leu	
186 191 196 201	
aag aca ttc gtg agg cag aac gct gcc atc cgt ggc atc cgg cac gtc	915
Lys Thr Phe Val Arg Gln Asn Ala Ala Ile Arg Gly Ile Arg His Val	
202 207 212 217	
act agc gat gac ttc tgt ttc ttc cag atg ctc atg ggt ggg ggt gtg	963
Thr Ser Asp Asp Phe Cys Phe Phe Gln Met Leu Met Gly Gly Gly Val	
218 223 228 233	
tgt agc aca gtg aca ctc aac ttc aac atg cca ggc gcc ttt gtg cat	1011
Cys Ser Thr Val Thr Leu Asn Phe Asn Met Pro Gly Ala Phe Val His	
234 239 244 249	
gaa gtc atg gtg gta ggc tct gca gga cgc ctc gtc gcc cgg gga gcc	1059
Glu Val Met Val Val Gly Ser Ala Gly Arg Leu Val Ala Arg Gly Ala	
250 255 260 265	
gac ctc tat ggg cag aag aac tct gcc acg caa gag gag ctg ctc ttg	1107
Asp Leu Tyr Gly Gln Lys Asn Ser Ala Thr Gln Glu Glu Leu Leu Leu	
266 271 276 281	

agg gac tcg ctg gca gtg ggc gca gga ctg cct gag cag ggg ccc cag	1155
Arg Asp Ser Leu Ala Val Gly Ala Gly Leu Pro Glu Gln Gly Pro Gln	
282 287 292 297	
gat gtc ccg ctg ctg tac ctg aag ggc atg gtc tac atg gtg cag gcc	1203
Asp Val Pro Leu Leu Tyr Leu Lys Gly Met Val Tyr Met Val Gln Ala	
298 303 308 313	
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Leu Arg Gln Ser Phe Gln Gly Gln Gly Asp Arg Arg Thr Trp Asp Arg	
314 319 324 329	
acc cct gtc tcc atg gcc gcc tcc ttc gag gat ggg ctg tac atg cag	1299
Thr Pro Val Ser Met Ala Ala Ser Phe Glu Asp Gly Leu Tyr Met Gln	
330 335 340 345	
agc gtg gtg gat gcc atc aag agg tcg agc cga tcc ggg gag tgg gag	1347
Ser Val Val Asp Ala Ile Lys Arg Ser Ser Arg Ser Gly Glu Trp Glu	
346 351 356 361	
gct gtg gag gtg ctg acg gag gag ccc gac acc aac cag aac ctg tgt	1395
Ala Val Glu Val Leu Thr Glu Glu Pro Asp Thr Asn Gln Asn Leu Cys	
362 367 372 377	
gag gca ctt cag cgg aac aac cta tga gcctg cacctgggct ccttgccaca	1447
Glu Ala Leu Gln Arg Asn Asn Leu *	
378 383	
gggcagaggg accagggagg ggaacaggag ccagacatga cagggacttg gccctagcag	1507
agacagtgtc tttcatTTaa tgagtctggg tgaagccaga ggtggctctg ggacttcgcc	1567
ccctccagtg gctcatctgc tcctcagact tgcagggttg caaatgttcc tgttgccagg	1627
ttaccacggt gtgcacaggg cagagctgcc gccaggcctc ctcatggtga tgccagtga	1687
tcggaccagg aaaggetcac cctggggagc ccttcagcct gatccgcagt cctaacaggg	1747
tgagaaagca caagaggggc cagctcggct gaggcctgag gagaaatgat gagaagtttt	1807
gtttcgttct tgggctgggg catctcagga acagtgaggg caacaagctg tccctcaggg	1867
accctcacct gccctcccat gtgaccaggc ccttcccagg tggggactgg ggcttgcttt	1927
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aaaaa	2052

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Ile Glu Thr Leu Glu Glu Val Ala Ser Ala Lys Gln Ser Val Lys Tyr	
183 188 193 198	
ata cag agc aca ggt tcc tct gat gat tct gct cta gca ctg ttg gca	856
Ile Gln Ser Thr Gly Ser Ser Asp Asp Ser Ala Leu Ala Leu Leu Ala	
199 204 209 214	
gat att acc agc aag tac cgt caa ggt gac aga aaa ggg cag att aaa	904
Asp Ile Thr Ser Lys Tyr Arg Gln Gly Asp Arg Lys Gly Gln Ile Lys	
215 220 225 230	
gaa gat ggc tgt cca tct gac ccc acg agc aaa cag gta gaa ggt att	952
Glu Asp Gly Cys Pro Ser Asp Pro Thr Ser Lys Gln Val Glu Gly Ile	
231 236 241 246	
gaa att gtg gaa ctt cag ctg tca cat gtg aag gac ttg ttc cat tgt	1000
Glu Ile Val Glu Leu Gln Leu Ser His Val Lys Asp Leu Phe His Cys	
247 252 257 262	
gag aaa tgt aac cgt tca ttt aaa ttg ttt tac cat ttt aag gag cac	1048
Glu Lys Cys Asn Arg Ser Phe Lys Leu Phe Tyr His Phe Lys Glu His	
263 268 273 278	
atg aaa tca cac tcc act gag agt ttc aag tgt gaa ata tgc aat aaa	1096
Met Lys Ser His Ser Thr Glu Ser Phe Lys Cys Glu Ile Cys Asn Lys	
279 284 289 294	
cga tat ctt cga gag agc gca tgg aaa cag cac cta aat tgt tac cac	1144
Arg Tyr Leu Arg Glu Ser Ala Trp Lys Gln His Leu Asn Cys Tyr His	
295 300 305 310	
ctt gaa gaa ggt gga gtc agt aag aag caa aga act ggg aaa aaa att	1192
Leu Glu Glu Gly Gly Val Ser Lys Lys Gln Arg Thr Gly Lys Lys Ile	
311 316 321 326	
cat gta tgt cag tac tgt gag aaa cag ttt gac cat ttt gga cat ttt	1240
His Val Cys Gln Tyr Cys Glu Lys Gln Phe Asp His Phe Gly His Phe	
327 332 337 342	
aaa gaa cat ctt cga aaa cat aca ggt gaa aaa cct ttt gaa tgt cca	1288
Lys Glu His Leu Arg Lys His Thr Gly Glu Lys Pro Phe Glu Cys Pro	
343 348 353 358	
aat tgt cat gaa cga ttt gct aga aat agc act ctg aaa tgt cac ctc	1336
Asn Cys His Glu Arg Phe Ala Arg Asn Ser Thr Leu Lys Cys His Leu	
359 364 369 374	
act gca tgc caa act gga gta ggg gca aaa aaa gga agg aag aag ctc	1384
Thr Ala Cys Gln Thr Gly Val Gly Ala Lys Lys Gly Arg Lys Lys Leu	
375 380 385 390	
tac gaa tgc cag gtc tgc aac agt gtg ttt aac agc tgg gac cag ttc	1432
Tyr Glu Cys Gln Val Cys Asn Ser Val Phe Asn Ser Trp Asp Gln Phe	

391	396	401	406	
aaa gat cac ttg gta ata cac act gga gat	aaa ccc aac cat tgt act			1480
Lys Asp His Leu Val Ile His Thr Gly Asp	Lys Pro Asn His Cys Thr			
407	412	417	422	
tta tgt gat ttg tgg ttt atg caa gga aat gaa tta agg agg cat ctc				1528
Leu Cys Asp Leu Trp Phe Met Gln Gly Asn Glu Leu Arg Arg His Leu				
423	428	433	438	
agt gat gct cac aat att tca gag cgt cta gta acg gaa gaa gtt ctt				1576
Ser Asp Ala His Asn Ile Ser Glu Arg Leu Val Thr Glu Glu Val Leu				
439	444	449	454	
tca gta gaa aca cgt gtg caa act gaa cct gta aca tca atg act att				1624
Ser Val Glu Thr Arg Val Gln Thr Glu Pro Val Thr Ser Met Thr Ile				
455	460	465	470	
ata gaa caa gtt ggg aag gtg cat gtg cta cca ttg ctt cag gtt cag				1672
Ile Glu Gln Val Gly Lys Val His Val Leu Pro Leu Leu Gln Val Gln				
471	476	481	486	
gtg gat tca gca caa gtg act gtg gaa caa gtc cat cca gat ctg ctc				1720
Val Asp Ser Ala Gln Val Thr Val Glu Gln Val His Pro Asp Leu Leu				
487	492	497	502	
cag gac agc cag gtg cac gat tca cac atg agt gag ctt cca gag cag				1768
Gln Asp Ser Gln Val His Asp Ser His Met Ser Glu Leu Pro Glu Gln				
503	508	513	518	
gtc caa gtg agt tat cta gaa gtg ggc cga att cag act gaa gaa ggt				1816
Val Gln Val Ser Tyr Leu Glu Val Gly Arg Ile Gln Thr Glu Glu Gly				
519	524	529	534	
act gaa gta cat gta gag gag ctg cat gtt gaa cgg gtc aat caa atg				1864
Thr Glu Val His Val Glu Glu Leu His Val Glu Arg Val Asn Gln Met				
535	540	545	550	
cca gtg gaa gta caa act gaa ctt cta gaa gca gat ttg gac cac gtg				1912
Pro Val Glu Val Gln Thr Glu Leu Leu Glu Ala Asp Leu Asp His Val				
551	556	561	566	
acc cca gaa atc atg aac caa gag gag aga gag tct agc caa gca gat				1960
Thr Pro Glu Ile Met Asn Gln Glu Glu Arg Glu Ser Ser Gln Ala Asp				
567	572	577	582	
gct gct gag gct gcc agg gaa gat cac gaa gat gct gag gat tta gag				2008
Ala Ala Glu Ala Ala Arg Glu Asp His Glu Asp Ala Glu Asp Leu Glu				
583	588	593	598	
acc aag cca aca gtg gat tct gaa gca gaa aag gca gag aat gag gac				2056
Thr Lys Pro Thr Val Asp Ser Glu Ala Glu Lys Ala Glu Asn Glu Asp				
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aga aca gct ctg cca gtt tta gaa tga aatta cacatgaata tattttttaa				2108
Arg Thr Ala Leu Pro Val Leu Glu *				
615	620			

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tggtgtgtgt ttatgcttta ggggttttgt tctcggctc gagtcatgg gtgtacatta 180
tcattgctctt cttttgtaga gcagcccgac ggcc      atg gag gct gaa gag acg 232
                                         Met Glu Ala Glu Glu Thr
                                         1

atg gaa tgc ctt cag gag ttc cct gaa cat cat aaa atg atc ctc gac 280
Met Glu Cys Leu Gln Glu Phe Pro Glu His His Lys Met Ile Leu Asp
  7              12              17              22

cga ttg aat gaa cag cga gag cag gac cgg ttt act gac atc acc cta 328
Arg Leu Asn Glu Gln Arg Glu Gln Asp Arg Phe Thr Asp Ile Thr Leu
  23              28              33              38

att gtc gac gga cac cat ttt aag gct cac aag gct gtt ttg gct gct 376
Ile Val Asp Gly His His Phe Lys Ala His Lys Ala Val Leu Ala Ala
  39              44              49              54

tgt agt aag ttc ttc tac aaa ttc ttt cag gag ttt acc caa gaa cca 424

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Cys Ser Lys Phe Phe Tyr Lys Phe Phe Gln Glu Phe Thr Gln Glu Pro	
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ttg gtg gag ata gaa ggt gtt agt aaa atg gcc ttt cgc cat tta att	472
Leu Val Glu Ile Glu Gly Val Ser Lys Met Ala Phe Arg His Leu Ile	
71 76 81 86	
gag ttc aca tat aca gca aaa tta atg ata caa gga gaa gaa gaa gcc	520
Glu Phe Thr Tyr Thr Ala Lys Leu Met Ile Gln Gly Glu Glu Glu Ala	
87 92 97 102	
aat gat gta tgg aaa gca gca gag ttt cta caa atg cta gaa gct atc	568
Asn Asp Val Trp Lys Ala Ala Glu Phe Leu Gln Met Leu Glu Ala Ile	
103 108 113 118	
aaa gcc ctt gaa gtc agg aac aaa gaa aac tca gct ccc tta gag gaa	616
Lys Ala Leu Glu Val Arg Asn Lys Glu Asn Ser Ala Pro Leu Glu Glu	
119 124 129 134	
aat acc aca gga aaa aat gag gcc aaa aaa agg aag att gca gaa act	664
Asn Thr Thr Gly Lys Asn Glu Ala Lys Lys Arg Lys Ile Ala Glu Thr	
135 140 145 150	
tca aat gtt atc act gag tca ttg cca tct gca gaa tca gaa cct gtt	712
Ser Asn Val Ile Thr Glu Ser Leu Pro Ser Ala Glu Ser Glu Pro Val	
151 156 161 166	
gaa att gag gta gag att gcc gaa gcc att gaa gtg gaa gat gaa ggc	760
Glu Ile Glu Val Glu Ile Ala Glu Ala Ile Glu Val Glu Asp Glu Gly	
167 172 177 182	
atc gaa aca tta gag gaa gtg gct tct gcc aag cag tcc gta aag tac	808
Ile Glu Thr Leu Glu Glu Val Ala Ser Ala Lys Gln Ser Val Lys Tyr	
183 188 193 198	
ata cag agc aca ggt tcc tct gat gat tct gct cta gca ctg ttg gca	856
Ile Gln Ser Thr Gly Ser Ser Asp Asp Ser Ala Leu Ala Leu Leu Ala	
199 204 209 214	
gat att acc agc aag tac cgt caa ggt gac aga aaa ggg cag att aaa	904
Asp Ile Thr Ser Lys Tyr Arg Gln Gly Asp Arg Lys Gly Gln Ile Lys	
215 220 225 230	
gaa gat ggc tgt cca tct gac ccc acg agc aaa cag gag cac atg aaa	952
Glu Asp Gly Cys Pro Ser Asp Pro Thr Ser Lys Gln Glu His Met Lys	
231 236 241 246	
tca cac tcc act gag agt ttc aag tgt gaa ata tgc aat aaa cga tat	1000
Ser His Ser Thr Glu Ser Phe Lys Cys Glu Ile Cys Asn Lys Arg Tyr	
247 252 257 262	
ctt cga gag agc gca tgg aaa cag cac cta aat tgt tac cac ctt gaa	1048
Leu Arg Glu Ser Ala Trp Lys Gln His Leu Asn Cys Tyr His Leu Glu	
263 268 273 278	
gaa ggt gga gtc agt aag aag caa aga act ggg aaa aaa att cat gta	1096
Glu Gly Gly Val Ser Lys Lys Gln Arg Thr Gly Lys Lys Ile His Val	



279	284	289	294	
tgt cag tac tgt gag	aaa cag ttt gac cat	ttt gga cat ttt aaa gaa	1144	
Cys Gln Tyr Cys Glu	Lys Gln Phe Asp His	Phe Gly His Phe Lys Glu		
295	300	305	310	
cat ctt cga aaa cat	aca ggt gaa aaa cct	ttt gaa tgt cca aat tgt	1192	
His Leu Arg Lys His	Thr Gly Glu Lys Pro	Phe Glu Cys Pro Asn Cys		
311	316	321	326	
cat gaa cga ttt gct	aga aat agc act ctg	aaa tgt cac ctc act gca	1240	
His Glu Arg Phe Ala	Arg Asn Ser Thr Leu	Lys Cys His Leu Thr Ala		
327	332	337	342	
tgc caa act gga gta	ggg gca aaa aaa gga	agg aag aag ctc tac gaa	1288	
Cys Gln Thr Gly Val	Gly Ala Lys Lys Gly	Arg Lys Lys Leu Tyr Glu		
343	348	353	358	
tgc cag gtc tgc aac	agt gtg ttt aac agc	tgg gac cag ttc aaa gat	1336	
Cys Gln Val Cys Asn	Ser Val Phe Asn Ser	Trp Asp Gln Phe Lys Asp		
359	364	369	374	
cac ttg gta ata cac	act gga gat aaa ccc	aac cat tgt act tta tgt	1384	
His Leu Val Ile His	Thr Gly Asp Lys Pro	Asn His Cys Thr Leu Cys		
375	380	385	390	
gat ttg tgg ttt atg	caa gga aat gaa tta	agg agg cat ctc agt gat	1432	
Asp Leu Trp Phe Met	Gln Gly Asn Glu Leu	Arg Arg His Leu Ser Asp		
391	396	401	406	
gct cac aat att tca	gag cgt cta gta acg	gaa gaa gtt ctt tca gta	1480	
Ala His Asn Ile Ser	Glu Arg Leu Val Thr	Glu Glu Val Leu Ser Val		
407	412	417	422	
gaa aca cgt gtg caa	act gaa cct gta aca	tca atg act att ata gaa	1528	
Glu Thr Arg Val Gln	Thr Glu Pro Val Thr	Ser Met Thr Ile Ile Glu		
423	428	433	438	
caa gtt ggg aag gtg	cat gtg cta cca ttg	ctt cag gtt cag gtg gat	1576	
Gln Val Gly Lys Val	His Val Leu Pro Leu	Leu Gln Val Gln Val Asp		
439	444	449	454	
tca gca caa gtg act	gtg gaa caa gtc cat	cca gat ctg ctc cag gac	1624	
Ser Ala Gln Val Thr	Val Glu Gln Val His	Pro Asp Leu Leu Gln Asp		
455	460	465	470	
agc cag gtg cac gat	tca cac atg agt gag	ctt cca gag cag gtc caa	1672	
Ser Gln Val His Asp	Ser His Met Ser Glu	Leu Pro Glu Gln Val Gln		
471	476	481	486	
gtg agt tat cta gaa	gtg ggc cga att cag	act gaa gaa ggt act gaa	1720	
Val Ser Tyr Leu Glu	Val Gly Arg Ile Gln	Thr Glu Glu Gly Thr Glu		
487	492	497	502	
gta cat gta gag gag	ctg cat gtt gaa cgg	gtc aat caa atg cca gtg	1768	
Val His Val Glu Glu	Leu His Val Glu Arg	Val Asn Gln Met Pro Val		
503	508	513	518	

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aaa ttg aag atc ctt cca gtt ctt gga ttt cta ggt gga gta ata ttt				899
Lys Leu Lys Ile Leu Pro Val Leu Gly Phe Leu Gly Gly Val Ile Phe				
223	228	233	238	
tcc tgt tca aat tat ttc cat gtt atc ctc cat ggt ggt gtt ggc aag				947
Ser Cys Ser Asn Tyr Phe His Val Ile Leu His Gly Gly Val Gly Lys				
239	244	249	254	
aat gga tcc act ata gca ggc acc agt gtc ttg tca cct gga ctc cac				995
Asn Gly Ser Thr Ile Ala Gly Thr Ser Val Leu Ser Pro Gly Leu His				
255	260	265	270	
ata gga cta att att ata ctg gca ata atg atc tat aaa aag tca gca				1043
Ile Gly Leu Ile Ile Ile Leu Ala Ile Met Ile Tyr Lys Lys Ser Ala				
271	276	281	286	
act gat gtg ttt gaa aag cat cct tgt ctt tat atc cta atg ttt gga				1091
Thr Asp Val Phe Glu Lys His Pro Cys Leu Tyr Ile Leu Met Phe Gly				
287	292	297	302	
tgt gtc ttt gct aaa gtc tca caa aaa tta gtg gta gct cac atg acc				1139
Cys Val Phe Ala Lys Val Ser Gln Lys Leu Val Val Ala His Met Thr				
303	308	313	318	
aaa agt gaa cta tat ctt caa gac act gtc ttt ttg ggg cca ggt ctt				1187
Lys Ser Glu Leu Tyr Leu Gln Asp Thr Val Phe Leu Gly Pro Gly Leu				
319	324	329	334	
ttg ttt tta gac cag tac ttt aat aac ttt ata gac gaa tat gtt gtt				1235
Leu Phe Leu Asp Gln Tyr Phe Asn Asn Phe Ile Asp Glu Tyr Val Val				
335	340	345	350	
cta tgg atg gca atg gtg att tct tca ttt gat atg gtg ata tac ttt				1283
Leu Trp Met Ala Met Val Ile Ser Ser Phe Asp Met Val Ile Tyr Phe				
351	356	361	366	
agt gct ttg tgc ctg caa att tca aga cac ctt cat cta aat ata ttc				1331
Ser Ala Leu Cys Leu Gln Ile Ser Arg His Leu His Leu Asn Ile Phe				
367	372	377	382	
aag act gca tgt cat caa gca cct gaa cag gtt caa gtt ctt tct tca				1379
Lys Thr Ala Cys His Gln Ala Pro Glu Gln Val Gln Val Leu Ser Ser				
383	388	393	398	
aag agt cat cag aat aac atg gat tga agaga cttccgaaca cttgctatct				1431
Lys Ser His Gln Asn Met Asp *				
399	404			
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ggcggggantc aggaccggcg ctttctcctt gcttctgggg gtcgtggcct tgctcccgct      180
gtgcgggaaa agaatccagg cccttcacag cgcgtgtggg tgcggggggc ccgaagtgct      240
cgtggttccc cgctaggtct ccgctggggc aggaaccgga atc  atg ggt ggg acc      295
                                     Met Gly Gly Thr
                                     1

acc agc acc cgc cgg gtc acc ttc gag gcg gac gag aat gag aac atc      343
Thr Ser Thr Arg Arg Val Thr Phe Glu Ala Asp Glu Asn Glu Asn Ile
   5                      10                      15                      20

acc gtg gtg aag ggc atc cgg ctt tcg gaa aat gtg att gat cga atg      391
Thr Val Val Lys Gly Ile Arg Leu Ser Glu Asn Val Ile Asp Arg Met
  21                      26                      31                      36

aag gaa tcc tct cca tct ggt tcg aag tct cag cgg tat tct ggt gct      439
Lys Glu Ser Ser Pro Ser Gly Ser Lys Ser Gln Arg Tyr Ser Gly Ala
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tat ggt gcc tca gtt tct gat gaa gaa ttg aaa aga aga gta gct gag      487
Tyr Gly Ala Ser Val Ser Asp Glu Glu Leu Lys Arg Arg Val Ala Glu
  53                      58                      63                      68

gag ctg gca ttg gag caa gcc aag aaa gaa tcc gaa gat cag aaa cga      535
Glu Leu Ala Leu Glu Gln Ala Lys Lys Glu Ser Glu Asp Gln Lys Arg
  69                      74                      79                      84

cta aag caa gcc aaa gag ctg gac cga gag agg gct gct gcc aat gag      583
Leu Lys Gln Ala Lys Glu Leu Asp Arg Glu Arg Ala Ala Ala Asn Glu
  85                      90                      95                      100

cag tta acc aga gcc atc ctt cgg gag agg ata tgt agc gag gag gaa      631
Gln Leu Thr Arg Ala Ile Leu Arg Glu Arg Ile Cys Ser Glu Glu Glu
 101                      106                      111                      116

cgc gct aag gca aag cac ctg gct agg cag ctg gaa gag aaa gac cga      679
Arg Ala Lys Ala Lys His Leu Ala Arg Gln Leu Glu Glu Lys Asp Arg
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117	122	127	132	
gtg cta aag aag cag gat gca ttc tac aaa gaa cag ctg gct aga ctg				727
Val Leu Lys Lys Gln Asp Ala Phe Tyr Lys Glu Gln Leu Ala Arg Leu				
133	138	143	148	
gag gag agg agc tca gag ttc tac aga gtc acc act gaa caa tat cag				775
Glu Glu Arg Ser Ser Glu Phe Tyr Arg Val Thr Thr Glu Gln Tyr Gln				
149	154	159	164	
aaa gct gct gaa gag gtg gaa gca aag ttc aag cga tat gag tct cat				823
Lys Ala Ala Glu Glu Val Glu Ala Lys Phe Lys Arg Tyr Glu Ser His				
165	170	175	180	
cca gtc tgt gct gat ctg cag gcc aaa att ctt cag tgt tac cgt gag				871
Pro Val Cys Ala Asp Leu Gln Ala Lys Ile Leu Gln Cys Tyr Arg Glu				
181	186	191	196	
aac acc cac cag acc ctc aaa tgc tcc gct ctg gcc acc cag tat atg				919
Asn Thr His Gln Thr Leu Lys Cys Ser Ala Leu Ala Thr Gln Tyr Met				
197	202	207	212	
cac tgt gtc aat cat gcc aaa cag agc atg ctt gag aag gga gga taa				967
His Cys Val Asn His Ala Lys Gln Ser Met Leu Glu Lys Gly Gly *				
213	218	223	228	
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cctagtгaga aaacaaccca tttgaagaga agaccactaa tgagaagacc actaaagaga				1087
gacatcaaga atggattcag cagaatcatt tcacgttttg aacagcagca gtttgaaggg				1147
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 Met Arg His Glu Ala Pro  
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 7 12 17 22  
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 Ser Asp Gln Asn Phe Asp Tyr Met Phe Lys Leu Leu Ile Ile Gly Asn  
 23 28 33 38  
 agc agt gtg ggg aaa aca tct ttt cta ttc cgt tat gca gat gac tcc 317  
 Ser Ser Val Gly Lys Thr Ser Phe Leu Phe Arg Tyr Ala Asp Asp Ser  
 39 44 49 54  
 ttt aca tct gca ttc gtc agc aca gtt ggg atc gat ttc aaa gta aaa 365  
 Phe Thr Ser Ala Phe Val Ser Thr Val Gly Ile Asp Phe Lys Val Lys  
 55 60 65 70  
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 Thr Val Phe Lys Asn Glu Lys Arg Ile Lys Leu Gln Ile Trp Asp Thr  
 71 76 81 86  
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 Ala Gly Gln Glu Arg Tyr Arg Thr Ile Thr Thr Ala Tyr Tyr Arg Gly  
 87 92 97 102  
 gcc atg ggc ttt att tta atg tat gac att aca aat gaa gaa tcc ttc 509  
 Ala Met Gly Phe Ile Leu Met Tyr Asp Ile Thr Asn Glu Glu Ser Phe  
 103 108 113 118  
 aat gca gta caa gat tgg tca act caa atc aaa aca tac tct tgg gac 557  
 Asn Ala Val Gln Asp Trp Ser Thr Gln Ile Lys Thr Tyr Ser Trp Asp  
 119 124 129 134  
 aat gcc caa gtt att ctg gtt ggg aac aag tgt gac atg gaa gac gag 605  
 Asn Ala Gln Val Ile Leu Val Gly Asn Lys Cys Asp Met Glu Asp Glu  
 135 140 145 150  
 cgg gtc atc tca act gag cga ggt caa cat tta gga gaa cag ctt ggg 653  
 Arg Val Ile Ser Thr Glu Arg Gly Gln His Leu Gly Glu Gln Leu Gly  
 151 156 161 166





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Pro Ala Gly Ser Trp His Arg Gln Met Leu Arg Ser Ser Leu Arg Phe	
27 32 37 42	
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Pro Ile Thr Asn Ser Ala Gly Ala Pro Cys Lys Ala Ala Gly Arg Met	
43 48 53 58	
aac att ctg gca ccc gtg cgg agg gat cgc gtc ctg gcg gag ctg ccc	423
Asn Ile Leu Ala Pro Val Arg Arg Asp Arg Val Leu Ala Glu Leu Pro	
59 64 69 74	
cag tgc ctg agg aag gag gcc gct ttg cac ggg cac aaa gac ttc cac	471
Gln Cys Leu Arg Lys Glu Ala Ala Leu His Gly His Lys Asp Phe His	
75 80 85 90	
ccc cgc gtc acc tgc gcc tgc cag gag cac cgg aca ggc acc gtg gga	519
Pro Arg Val Thr Cys Ala Cys Gln Glu His Arg Thr Gly Thr Val Gly	
91 96 101 106	
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Phe Lys Ile Ser Lys Val Ile Val Val Gly Asp Leu Ser Val Gly Lys	
107 112 117 122	
act tgc ctc att aat agg ttc tgc aaa gac acc ttt gat aag aat tac	615
Thr Cys Leu Ile Asn Arg Phe Cys Lys Asp Thr Phe Asp Lys Asn Tyr	
123 128 133 138	
aag gcc acc att gga gtg gac ttc gag atg gaa cga ttt gag gtg ctg	663
Lys Ala Thr Ile Gly Val Asp Phe Glu Met Glu Arg Phe Glu Val Leu	
139 144 149 154	
ggc att ccc ttc agt ttg cag ctt tgg gat acc gct ggg cag gag agg	711
Gly Ile Pro Phe Ser Leu Gln Leu Trp Asp Thr Ala Gly Gln Glu Arg	
155 160 165 170	
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Phe Lys Cys Ile Ala Ser Thr Tyr Tyr Arg Gly Ala Gln Ala Ile Ile	
171 176 181 186	
att gtc ttc aac ctg aat gat gtg gca tct ctg gaa cat acc aag cag	807
Ile Val Phe Asn Leu Asn Asp Val Ala Ser Leu Glu His Thr Lys Gln	
187 192 197 202	
tgg ctg gcc gat gcc ctg aag gag aat gac cct tcc agt gtg ctt ctc	855
Trp Leu Ala Asp Ala Leu Lys Glu Asn Asp Pro Ser Ser Val Leu Leu	
203 208 213 218	
ttc ctt gta ggt tcc aag aag gat ctg agt acc cct gct cag tat gcg	903
Phe Leu Val Gly Ser Lys Lys Asp Leu Ser Thr Pro Ala Gln Tyr Ala	
219 224 229 234	
ctg atg gag aaa gac gcc ctc cag gtg gcc cag gag atg aag gct gag	951
Leu Met Glu Lys Asp Ala Leu Gln Val Ala Gln Glu Met Lys Ala Glu	
235 240 245 250	
tac tgg gca gtc tca tct ctc act ggt gag aat gtc cga gaa ttc ttc	999



ctgcggggga cgatttcgtc ggtggtaggc tgctacc atg agg ttg aat cag aac	115
Met Arg Leu Asn Gln Asn	
1	
acc ttg ctg ctg ggg aag aag gtg gtc ctt gta ccc tac acc tcg gag	163
Thr Leu Leu Leu Gly Lys Lys Val Val Leu Val Pro Tyr Thr Ser Glu	
7 12 17 22	
cat gtg ccc agg tac cac gag tgg atg aaa tca gag gag ctg cag cgt	211
His Val Pro Arg Tyr His Glu Trp Met Lys Ser Glu Glu Leu Gln Arg	
23 28 33 38	
ttg aca gcc tcg gag ccg ctg acc ctg gag cag gag tat gcc atg cag	259
Leu Thr Ala Ser Glu Pro Leu Thr Leu Glu Gln Glu Tyr Ala Met Gln	
39 44 49 54	
tgc agc tgg cag gaa gat gca gac aag tgt acc ttc att gtg ctg gat	307
Cys Ser Trp Gln Glu Asp Ala Asp Lys Cys Thr Phe Ile Val Leu Asp	
55 60 65 70	
gcc gag aag tgg cag gcc cag cca ggc gcc acc gaa gag agc tgc atg	355
Ala Glu Lys Trp Gln Ala Gln Pro Gly Ala Thr Glu Glu Ser Cys Met	
71 76 81 86	
gtg gga gat gtg aac ctc ttc ctc aca gat cta gaa gac ctc acc ttg	403
Val Gly Asp Val Asn Leu Phe Leu Thr Asp Leu Glu Asp Leu Thr Leu	
87 92 97 102	
ggg gag atc gag gtc atg att gca gag ccc agc tgc agg ggt aag ggc	451
Gly Glu Ile Glu Val Met Ile Ala Glu Pro Ser Cys Arg Gly Lys Gly	
103 108 113 118	
ctt ggc act gag gcc gtt ctc gcg atg ctg tct tac gga gtg acc acg	499
Leu Gly Thr Glu Ala Val Leu Ala Met Leu Ser Tyr Gly Val Thr Thr	
119 124 129 134	
cta ggt ctg acc aag ttt gag gct aaa att ggg caa gga aat gaa cca	547
Leu Gly Leu Thr Lys Phe Glu Ala Lys Ile Gly Gln Gly Asn Glu Pro	
135 140 145 150	
agc atc cgg atg ttc cag aaa ctt cac ttt gag cag gtg gct acg agc	595
Ser Ile Arg Met Phe Gln Lys Leu His Phe Glu Gln Val Ala Thr Ser	
151 156 161 166	
agt gtt ttt cag gag gtg acc ctc aga ctg aca gtg agt gag tcc gag	643
Ser Val Phe Gln Glu Val Thr Leu Arg Leu Thr Val Ser Glu Ser Glu	
167 172 177 182	
cat cag tgg ctt ctg gag cag acc agc cac gtg gaa gag aag cct tac	691
His Gln Trp Leu Leu Glu Gln Thr Ser His Val Glu Glu Lys Pro Tyr	
183 188 193 198	
aga gat ggg tcg gca gag ccc tgc tga tggct gggccttggtg ggcagccact	743
Arg Asp Gly Ser Ala Glu Pro Cys *	
199 204	

ctgtgtgagc aggggtgttg gcccatcac ttcaaagacc agagccctgc actgggagag	803
tgtcctggc ccaggctggg aatcaccttt cgaggccctt cagactctgg cggggcttgc	863
tgtggcctcc ctccagctag tgggtgtggt gagcagactc cagggccagg gccagttccc	923
ttctccctc ccggccaaac ccagaccag actctaggaa gctggaatgg agggcagggg	983
tccatgggag atgtcgggat gaagggtggga gctggaggtg cagggggacc tggaacatgg	1043
atgggagtgg acaggccttt ctcccttagag gccagaggtg ctgccctggc tgggagtga	1103
gctccaggca ctaccagctt tcttgatttt cccgtttggt ccatgtgaag agctaccacg	1163
agccccagcc tcacagtgtc cactcaaggg cagcttggtc ctcttgtcct gcagaggcag	1223
gctggtgtga ccctgggaac ttgaccggg aacaacaggt ggtccagagt gagtgtggcc	1283
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cgggcatgct ttctaaacac agccacagga ggcttgtagg gcatcttoca ggtggggaaa	1763
cagtcttaga taagtaaggt gacttgcccta aggcctccca gcacccttga tcttgagtc	1823
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ttataaaacg aaaaaaaaaa aa	1905

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atg gct gct gtt gac agt ttc tac ctc ttg tac agg gaa atc gcc agg	167

Met	Ala	Ala	Val	Asp	Ser	Phe	Tyr	Leu	Leu	Tyr	Arg	Glu	Ile	Ala	Arg		
1				5					10					15			
tct	tgc	aat	tgc	tat	atg	gaa	gct	cta	gct	ttg	gtt	gga	gcc	tgg	tat	215	
Ser	Cys	Asn	Cys	Tyr	Met	Glu	Ala	Leu	Ala	Leu	Val	Gly	Ala	Trp	Tyr		
17				22					27					32			
acg	gcc	aga	aaa	agc	atc	act	gtc	atc	tgt	gac	ttt	tac	agc	ctg	atc	263	
Thr	Ala	Arg	Lys	Ser	Ile	Thr	Val	Ile	Cys	Asp	Phe	Tyr	Ser	Leu	Ile		
33				38					43					48			
agg	ctg	cat	ttt	atc	ccc	cgc	ctg	ggg	agc	aga	gca	gac	ttg	atc	aag	311	
Arg	Leu	His	Phe	Ile	Pro	Arg	Leu	Gly	Ser	Arg	Ala	Asp	Leu	Ile	Lys		
49				54					59					64			
cag	tat	gga	aga	tgg	gcc	gtt	gtc	agc	ggg	gca	aca	gat	ggg	att	gga	359	
Gln	Tyr	Gly	Arg	Trp	Ala	Val	Val	Ser	Gly	Ala	Thr	Asp	Gly	Ile	Gly		
65				70					75					80			
aaa	gcc	tac	gct	gaa	gag	tta	gca	agc	cga	ggg	ctc	aat	ata	atc	ctg	407	
Lys	Ala	Tyr	Ala	Glu	Glu	Leu	Ala	Ser	Arg	Gly	Leu	Asn	Ile	Ile	Leu		
81				86					91					96			
att	agt	cgg	aac	gag	gag	aag	ttg	cag	gtt	gtt	gct	aaa	gac	ata	gcc	455	
Ile	Ser	Arg	Asn	Glu	Glu	Lys	Leu	Gln	Val	Val	Ala	Lys	Asp	Ile	Ala		
97				102					107					112			
gac	acg	tac	aaa	gtg	gaa	act	gat	att	ata	gtt	gcg	gac	ttc	agc	agc	503	
Asp	Thr	Tyr	Lys	Val	Glu	Thr	Asp	Ile	Ile	Val	Ala	Asp	Phe	Ser	Ser		
113				118					123					128			
ggg	cgt	gag	atc	tac	ctt	cca	att	cga	gaa	gcc	ctg	aag	gac	aaa	gac	551	
Gly	Arg	Glu	Ile	Tyr	Leu	Pro	Ile	Arg	Glu	Ala	Leu	Lys	Asp	Lys	Asp		
129				134					139					144			
gtt	ggc	atc	ttg	gta	aat	aac	gtg	ggg	gtg	ttt	tat	ccc	tac	ccg	cag	599	
Val	Gly	Ile	Leu	Val	Asn	Asn	Val	Gly	Val	Phe	Tyr	Pro	Tyr	Pro	Gln		
145				150					155					160			
tat	ttc	act	cag	ctg	tcc	gag	gac	aag	ctc	tgg	gac	atc	ata	aat	gtg	647	
Tyr	Phe	Thr	Gln	Leu	Ser	Glu	Asp	Lys	Leu	Trp	Asp	Ile	Ile	Asn	Val		
161				166					171					176			
aac	att	gcc	gcc	gct	agt	ttg	atg	gtc	cat	gtt	gtg	tta	ccg	gga	atg	695	
Asn	Ile	Ala	Ala	Ala	Ser	Leu	Met	Val	His	Val	Val	Leu	Pro	Gly	Met		
177				182					187					192			
gtg	gag	aga	aag	aaa	ggg	gcc	atc	gtc	acg	atc	tct	tct	ggc	tcc	tgc	743	
Val	Glu	Arg	Lys	Lys	Gly	Ala	Ile	Val	Thr	Ile	Ser	Ser	Gly	Ser	Cys		
193				198					203					208			
tgc	aaa	ccc	act	cct	cag	ctg	gct	gca	ttt	tct	gct	tct	aag	gct	tat	791	
Cys	Lys	Pro	Thr	Pro	Gln	Leu	Ala	Ala	Phe	Ser	Ala	Ser	Lys	Ala	Tyr		
209				214					219					224			
tta	gac	cac	ttc	agc	aga	gcc	ttg	caa	tat	gaa	tat	gcc	tct	aaa	gga	839	
Leu	Asp	His	Phe	Ser	Arg	Ala	Leu	Gln	Tyr	Glu	Tyr	Ala	Ser	Lys	Gly		

225	230	235	240	
atc ttt gta cag agt	cta atc cct ttc tat	gta gcc acc agc atg aca		887
Ile Phe Val Gln Ser	Leu Ile Pro Phe Tyr	Val Ala Thr Ser Met Thr		
241	246	251	256	
gca ccc agc aac ttt	ctg cac agg tgc tgc	tgg ttg gtg cct tgc cca		935
Ala Pro Ser Asn Phe	Leu His Arg Cys Ser	Trp Leu Val Pro Ser Pro		
257	262	267	272	
aaa gtc tat gca cat	cat gct gtt tct act	ctt ggg att tcc aaa agg		983
Lys Val Tyr Ala His	His Ala Val Ser Thr	Leu Gly Ile Ser Lys Arg		
273	278	283	288	
acc aca gga tat tgg	tcc cat tct att cag	ttt ctt ttt gca cag tat		1031
Thr Thr Gly Tyr Trp	Ser His Ser Ile Gln	Phe Leu Phe Ala Gln Tyr		
289	294	299	304	
atg cct gaa tgg ctc	tgg gtg tgg gga gca	aat att ctc aac cgt tca		1079
Met Pro Glu Trp Leu	Trp Val Trp Gly Ala	Asn Ile Leu Asn Arg Ser		
305	310	315	320	
cta cgt aag gaa gcc	tta tcc tgc aca gcc	tga gtctggat ggccacttga		1130
Leu Arg Lys Glu Ala	Leu Ser Cys Thr Ala	*		
321	326	331		
gaagttttgc caactcctgg	gaacctcgat attctgacat	ttggaaaaac acattttaatt		1190
tatctcctgt gtttcattgc	tgattattca gcatactggt	gattcgtcat ttgcaaaaca		1250
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cgtgtgtgtg gtgcctttga	gcaactttat ttatggttac	catattttta aaaagatttt		1730
ttgtcaggat gacttaacat	ggactcttat agggatttaa	aacaatctag attattcctt		1790
ttcatcctaa ataagcctac	caaatttcat gctgttggtt	tgccatgaat gatattactt		1850
cctacattat atttgtgttt	tttcaaactc gctatggaat	gaacttattc ctagatttgg		1910
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gtgattttctc agcctctgac	ccattttata actgaaat	tt agcccttttag agcttggtat		2030
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 aacacaattt tgcccatgac attgcctaca ggatttcag atgtgacttg cactcagaag 2570  
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 tcctcttgac ttcatgccac attgacgtga actttgatgt ataataagca gcagcaactt 2750  
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 <212> DNA  
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 gatgcactgg ggaaagcggg ggactcttat cgtgggaggg ctcttgatct gtgatttata 180  
 gataggcaca gctactcccg ttcgggaacc caacggcaga caggctcctag tgcccatcag 240  
 ataccgcggc ccgggactcg gagctgtggg gtgtggggag gcggaggcac caactaagag 300  
 cgacctagca tcgcaaagcc gccctcgggg cgctc atg gcg gga cgc ctc ctg 353  
 Met Ala Gly Arg Leu Leu  
 1  
 gga aag gct tta gcc gcg gtg tct ctc tct ctg gcc ttg gcc tct gtg 401

Gly	Lys	Ala	Leu	Ala	Ala	Val	Ser	Leu	Ser	Leu	Ala	Leu	Ala	Ser	Val	
7					12					17					22	
act	atc	agg	tcc	tcg	cgc	tgc	cgc	ggc	atc	cag	gcg	ttc	aga	aac	tcg	449
Thr	Ile	Arg	Ser	Ser	Arg	Cys	Arg	Gly	Ile	Gln	Ala	Phe	Arg	Asn	Ser	
23					28					33					38	
ttt	tca	tct	tct	tgg	ttt	cat	ctt	aat	acc	aac	gtc	atg	tct	ggt	tct	497
Phe	Ser	Ser	Ser	Trp	Phe	His	Leu	Asn	Thr	Asn	Val	Met	Ser	Gly	Ser	
39					44					49					54	
aat	ggt	tcc	aaa	gaa	aat	tct	cac	aat	aag	gct	cgg	acg	tct	cct	tac	545
Asn	Gly	Ser	Lys	Glu	Asn	Ser	His	Asn	Lys	Ala	Arg	Thr	Ser	Pro	Tyr	
55					60					65					70	
cca	ggt	tca	aaa	gtt	gaa	cga	agc	cag	gtt	cct	aat	gag	aaa	gtg	ggc	593
Pro	Gly	Ser	Lys	Val	Glu	Arg	Ser	Gln	Val	Pro	Asn	Glu	Lys	Val	Gly	
71					76					81					86	
tgg	ctt	gtt	gag	tgg	caa	gac	tat	aag	cct	gtg	gaa	tac	act	gca	gtc	641
Trp	Leu	Val	Glu	Trp	Gln	Asp	Tyr	Lys	Pro	Val	Glu	Tyr	Thr	Ala	Val	
87					92					97					102	
tct	gtc	ttg	gct	gga	ccc	agg	tgg	gca	gat	cct	cag	atc	agt	gaa	agt	689
Ser	Val	Leu	Ala	Gly	Pro	Arg	Trp	Ala	Asp	Pro	Gln	Ile	Ser	Glu	Ser	
103					108					113					118	
aat	ttt	tct	ccc	aag	ttt	aac	gaa	aag	gat	ggg	cat	gtt	gag	aga	aag	737
Asn	Phe	Ser	Pro	Lys	Phe	Asn	Glu	Lys	Asp	Gly	His	Val	Glu	Arg	Lys	
119					124					129					134	
agc	aag	aat	ggc	ctg	tat	gag	att	gaa	aat	gga	aga	ccg	aga	aat	cct	785
Ser	Lys	Asn	Gly	Leu	Tyr	Glu	Ile	Glu	Asn	Gly	Arg	Pro	Arg	Asn	Pro	
135					140					145					150	
gca	gga	cgg	act	gga	ctg	gtg	ggc	cgg	ggg	ctt	ttg	ggg	cga	tgg	ggc	833
Ala	Gly	Arg	Thr	Gly	Leu	Val	Gly	Arg	Gly	Leu	Leu	Gly	Arg	Trp	Gly	
151					156					161					166	
cca	aat	cac	gct	gca	gat	ccc	att	ata	acc	aga	tgg	aaa	agg	gat	agc	881
Pro	Asn	His	Ala	Ala	Asp	Pro	Ile	Ile	Thr	Arg	Trp	Lys	Arg	Asp	Ser	
167					172					177					182	
agt	gga	aat	aaa	atc	atg	cat	cct	gtt	tct	ggg	aag	cat	atc	tta	caa	929
Ser	Gly	Asn	Lys	Ile	Met	His	Pro	Val	Ser	Gly	Lys	His	Ile	Leu	Gln	
183					188					193					198	
ttt	gtt	gca	ata	aaa	agg	aaa	gac	tgt	gga	gaa	tgg	gca	atc	cca	ggg	977
Phe	Val	Ala	Ile	Lys	Arg	Lys	Asp	Cys	Gly	Glu	Trp	Ala	Ile	Pro	Gly	
199					204					209					214	
ggg	atg	gtg	gat	cca	gga	gag	aag	att	agt	gcc	aca	ctg	aaa	aga	gaa	1025
Gly	Met	Val	Asp	Pro	Gly	Glu	Lys	Ile	Ser	Ala	Thr	Leu	Lys	Arg	Glu	
215					220					225					230	
ttt	ggt	gag	gaa	gct	ctc	aac	tcc	tta	cag	aaa	acc	agt	gct	gag	aag	1073
Phe	Gly	Glu	Glu	Ala	Leu	Asn	Ser	Leu	Gln	Lys	Thr	Ser	Ala	Glu	Lys	



231	236	241	246	
aga gaa ata gag gaa aag ttg cac aaa ctc ttc agc caa gac cac cta				1121
Arg Glu Ile Glu Glu Lys Leu His Lys Leu Phe Ser Gln Asp His Leu				
247	252	257	262	
gtg ata tat aag gga tat gtt gat gat cct cga aac act gat aat gca				1169
Val Ile Tyr Lys Gly Tyr Val Asp Asp Pro Arg Asn Thr Asp Asn Ala				
263	268	273	278	
tgg atg gag aca gaa gct gtg aac tac cat gac gaa aca ggt gag ata				1217
Trp Met Glu Thr Glu Ala Val Asn Tyr His Asp Glu Thr Gly Glu Ile				
279	284	289	294	
atg gat aat ctt atg cta gaa gct gga gat gat gct gga aaa gtg aaa				1265
Met Asp Asn Leu Met Leu Glu Ala Gly Asp Asp Ala Gly Lys Val Lys				
295	300	305	310	
tgg gtg gac atc aat gat aaa ctg aag ctt tat gcc agt cac tct caa				1313
Trp Val Asp Ile Asn Asp Lys Leu Lys Leu Tyr Ala Ser His Ser Gln				
311	316	321	326	
ttc atc aaa ctt gtg gct gag aaa cga gat gca cac tgg agc gag gac				1361
Phe Ile Lys Leu Val Ala Glu Lys Arg Asp Ala His Trp Ser Glu Asp				
327	332	337	342	
tct gaa gct gac tgc cat gcg ttg tag ctgat ggtctccgtg taagccaaag				1413
Ser Glu Ala Asp Cys His Ala Leu *				
343	348			
gcccacagag gagcatatac tgaaaagaag gcagtatcac agaatttata ctataaaaag				1473
ggcagggtag gccacttggc ctatttactt tcaaaacaat ttgcatttag agtggttgcg				1533
atcagaataa catgagtaag atgaactgga acacaaaatt ttcagctctt tgggtcaaaag				1593
gaatataagt aatcatatatt tgtatgtatt cgatttaagc atggcttaaa ttaaatttaa				1653
acaactaatg ctctttgaag aatcataatc agaataaaga taaattcttg atcagotata				1713
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Ser Gly Arg Leu Ala Trp Ala Gln Gln Leu Cys Leu Leu Pro Arg Gly	
2 7 12 17	
gca aaa gca aat cag aag ctt ttt gta cct gaa cct cgc cca gtt cct	153
Ala Lys Ala Asn Gln Lys Leu Phe Val Pro Glu Pro Arg Pro Val Pro	
18 23 28 33	
aaa aat gac gtt gga ttt aaa tat tct gtg aaa cat cgg cca ttt cct	201
Lys Asn Asp Val Gly Phe Lys Tyr Ser Val Lys His Arg Pro Phe Pro	
34 39 44 49	
gaa gag gtg gac aag att cct ttt gtg aaa gca gat ctc agc att cca	249
Glu Glu Val Asp Lys Ile Pro Phe Val Lys Ala Asp Leu Ser Ile Pro	
50 55 60 65	
gat ttg cat gaa ata gtc act gaa gaa tta gaa gag aga cac gaa aaa	297
Asp Leu His Glu Ile Val Thr Glu Glu Leu Glu Glu Arg His Glu Lys	
66 71 76 81	
tta agg agt ggc atg gcc cag cag att gct tat gaa ata cac ctt gag	345
Leu Arg Ser Gly Met Ala Gln Gln Ile Ala Tyr Glu Ile His Leu Glu	
82 87 92 97	
caa cag agt gag gag gaa ttg cag aag aga agt ttt cct gac cca gtt	393
Gln Gln Ser Glu Glu Glu Leu Gln Lys Arg Ser Phe Pro Asp Pro Val	
98 103 108 113	
acg gat tgc aag ccc ccg cct cct gcc cag gaa ttc caa aca gcc cgc	441
Thr Asp Cys Lys Pro Pro Pro Pro Ala Gln Glu Phe Gln Thr Ala Arg	
114 119 124 129	
ctt ttt ctc tca cac ttt gga ttt ttg tcc tta gaa gca ctg aag gaa	489
Leu Phe Leu Ser His Phe Gly Phe Leu Ser Leu Glu Ala Leu Lys Glu	
130 135 140 145	
cct gca aat agt cgt cta cct cct cac ctt att gca ctt gat tcc acg	537
Pro Ala Asn Ser Arg Leu Pro Pro His Leu Ile Ala Leu Asp Ser Thr	
146 151 156 161	
ata cct gga ttt ttt gat gac att ggg tat ctg gat ctc ttg cca tgt	585
Ile Pro Gly Phe Phe Asp Asp Ile Gly Tyr Leu Asp Leu Leu Pro Cys	
162 167 172 177	
cgt cct ttt gac aca gtt ttt att ttc tat atg aag cca ggt cag aaa	633
Arg Pro Phe Asp Thr Val Phe Ile Phe Tyr Met Lys Pro Gly Gln Lys	
178 183 188 193	
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Ser Glu Asp Ile Gly Ala Ser Ile Phe Asn Gly Gln Lys Lys Val Leu	
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 97 102 107 112

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Lys Thr His Glu Val Val Gly Ser Ser Leu Leu Phe Val His Asp His				
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tgtatcagta	ttgggttcagt	ggttgtgata	attatataaa	gaatctacag	cagaaaaacc											1364
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tagaattttc agtgaataaa gttacacagt tgtccctctg ttcactcggg ggtttggtgc	1604
caggatgcat atggaaccct cgcgcacact tgggggtttac agtctctcaa aactgtggt	1664
actttctatc tgcatttagt aagggggaga aaaaacaagt ataaagtga ccagcgcagc	1724
tactagtgtt caagggcaac cttagtttac ctattataaa acaagtgact taatatattt	1784
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gattaatgag tatttttaaaa tctctctctt ttttttttag atcgaatgga gctgttagaa	1904
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ctcagaactg ttccttcagc caaagaaaca agccgtggaa taggtgtatc aagtaatggt	2024
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caaatctgat tagccactta tatcttagac tatacttttt gggaagtcta gagatgtata	2144
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gcttgagtcc aggagttcaa gactagcctg ggcaatgtgg caaaaccgcg tatttacaaa	2324
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ctattactag tttttctaag ctatttacag agtgtttgta gctttcattt gcagcattat	2624
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (367) .. (717)

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 gaagcatctg gaactgagca atcaggacag gaggtcaag cctgggtgag tcaggagtcc 180  
 gggggctttc ttttcatcca acccattgtc tgctggtgtc tcggcaaaag ccagccagcc 240  
 agccgtggcc cttcaccgtt cttcagactc tagggtgagc ccagcccagc gacacaacag 300  
 aaaccaagtg ccacgggggc cggtgtcctc caccagcatt tctcctctgg tcacatctac 360  
 gtctctg atg gga ctt ctc cct cct cct tgg acc atc agc ttt aca gtc 408  
 Met Gly Leu Leu Pro Pro Pro Trp Thr Ile Ser Phe Thr Val  
 1 5 10  
 cag acc acc ctg cag cca ccc ggt ggt ctc cca gct gcc cca gtc tcg 456  
 Gln Thr Thr Leu Gln Pro Pro Gly Gly Leu Pro Ala Ala Pro Val Ser  
 15 20 25 30  
 ggc agg atg gct ttt gag cct gtt ggg aga gac ctt gcc agg aga atg 504  
 Gly Arg Met Ala Phe Glu Pro Val Gly Arg Asp Leu Ala Arg Arg Met  
 31 36 41 46  
 gtg ccc agg gca ggc aag agg aca cag act ctg gga gct aga aga gtt 552  
 Val Pro Arg Ala Gly Lys Arg Thr Gln Thr Leu Gly Ala Arg Arg Val  
 47 52 57 62  
 gcg gcc cag ggg gcc agg cca ctc cca gag gac agg agg ccc aaa agc 600  
 Ala Ala Gln Gly Ala Arg Pro Leu Pro Glu Asp Arg Arg Pro Lys Ser  
 63 68 73 78  
 ggg gaa agg ctc cat gtt acg gtg gcc cca tgc tgg gag ttt gtg ctg 648  
 Gly Glu Arg Leu His Val Thr Val Ala Pro Cys Trp Glu Phe Val Leu  
 79 84 89 94  
 cct tct gtc tcc ctg act gcc caa gcg tgg ggt ggt gtg ggg cag gag 696  
 Pro Ser Val Ser Leu Thr Ala Gln Ala Trp Gly Gly Val Gly Gln Glu  
 95 100 105 110  
 gca tcc tct ggt gtt ccc tag ca gccaggctg tgtgcagggg ctcccatttt 749  
 Ala Ser Ser Gly Val Pro \*  
 111 116  
 gtgtctcagc tgcaagaagg ccacaaaggg aggaggggct catgggactg ctgagaagaa 809  
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 aggcagagcc tgagatccgg caccatcc cctccactc agcactgagt tagagctggg 1229

tgggggcatg tctgccttca cacgctgcct tatggcttct gtgtctccaa cagccctcag	1289
cctctggctg ctctccttcc caatagtcac aagatttacc atgataataa taggttaaga	1349
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<220>  
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 <222> (335) .. (1966)

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ctagtgccgg gccttgagcg cctttgggcc ccgccgtcc gttccagcgc cacgctgggc	180
tccggtctac acagtctcga gcgcagtccc gcgccgcgca ccggctgggt gctgtgagga	240
gggtcgggta cccctccatt cctttgatcc gccgcgcagt gcgtcccccac gcggatccct	300
ggctgcctc gcgcctgccg gcggatccgt ggtc	352
atg cca acc cag cag ccg	
Met Pro Thr Gln Gln Pro	
1	
gct gcg ccg agt act cgt gcc ccc aaa ccc tcc cgg agt ctc tct ggc	400
Ala Ala Pro Ser Thr Arg Ala Pro Lys Pro Ser Arg Ser Leu Ser Gly	
7 12 17 22	
tca ctt tgt gcc ctg ttt tct gat gca gac tcg gga tcc ggg atg aag	448
Ser Leu Cys Ala Leu Phe Ser Asp Ala Asp Ser Gly Ser Gly Met Lys	
23 28 33 38	
gcg gag ctt ccc cct ggg cdt ggg gca gtg ggg agg gaa atg acc aaa	496
Ala Glu Leu Pro Pro Gly Pro Gly Ala Val Gly Arg Glu Met Thr Lys	
39 44 49 54	
gaa gaa aag ctg cag ctt cgg aag gaa aag aaa cag cag aag aag aaa	544



279	284	289	294	
aac gcc atc aag ttc ctt aac aag gaa atc acc agt gtg ggc agt tcc				1264
Asn Ala Ile Lys Phe Leu Asn Lys Glu Ile Thr Ser Val Gly Ser Ser				
295	300	305	310	
aag cgg gaa gag gag gcc aag tca gaa ctt cga gca gcc att gat cgg				1312
Lys Arg Glu Glu Glu Ala Lys Ser Glu Leu Arg Ala Ala Ile Asp Arg				
311	316	321	326	
tat gtg caa gag aag att gtg cta gca gct cag gca att tca cgc ttt				1360
Tyr Val Gln Glu Lys Ile Val Leu Ala Ala Gln Ala Ile Ser Arg Phe				
327	332	337	342	
gct tac cag aag atc agt aat gga gat gtg atc ctg gta tat gga tgc				1408
Ala Tyr Gln Lys Ile Ser Asn Gly Asp Val Ile Leu Val Tyr Gly Cys				
343	348	353	358	
tca tct ctg gta tca cga att ctt cag gag gct tgg aca gag ggc cgg				1456
Ser Ser Leu Val Ser Arg Ile Leu Gln Glu Ala Trp Thr Glu Gly Arg				
359	364	369	374	
cgg ttt cgg gtg gta gtg gtg gac agc cgg cca tgg ctg gaa gga agg				1504
Arg Phe Arg Val Val Val Val Asp Ser Arg Pro Trp Leu Glu Gly Arg				
375	380	385	390	
cac aca cta cgt tct cta gtc cat gct ggt gtc cca gcc tcc tac ctg				1552
His Thr Leu Arg Ser Leu Val His Ala Gly Val Pro Ala Ser Tyr Leu				
391	396	401	406	
ctg att cct gca gcc tcc tat gtg ctc cca gag gtt tcc aag gtg cta				1600
Leu Ile Pro Ala Ala Ser Tyr Val Leu Pro Glu Val Ser Lys Val Leu				
407	412	417	422	
ttg gga gct cat gca ctc ttg gcc aac ggg tct gtg atg tca cgg gta				1648
Leu Gly Ala His Ala Leu Leu Ala Asn Gly Ser Val Met Ser Arg Val				
423	428	433	438	
ggg aca gca cag tta gcc ctg gtg gct cga gcc cat aat gta cca gtg				1696
Gly Thr Ala Gln Leu Ala Leu Val Ala Arg Ala His Asn Val Pro Val				
439	444	449	454	
ctg gtt tgc tgt gaa aca tac aag ttc tgt gag cgt gtg cag act gat				1744
Leu Val Cys Cys Glu Thr Tyr Lys Phe Cys Glu Arg Val Gln Thr Asp				
455	460	465	470	
gcc ttt gtc tct aat gag cta gat gac cct gat gat ctg caa tgt aag				1792
Ala Phe Val Ser Asn Glu Leu Asp Asp Pro Asp Asp Leu Gln Cys Lys				
471	476	481	486	
cgg gga gaa cat gtt gcg ctg gct aac tgg cag aac cac gca tcc cta				1840
Arg Gly Glu His Val Ala Leu Ala Asn Trp Gln Asn His Ala Ser Leu				
487	492	497	502	
cgg ttg ttg aat cta gtc tat gat gtg act ccc cca gag ctt gtg gat				1888
Arg Leu Leu Asn Leu Val Tyr Asp Val Thr Pro Pro Glu Leu Val Asp				
503	508	513	518	





Leu Ile Arg Asn Thr Cys Glu Ala Val Val Leu Gly Thr Leu His Pro	
97 102 107 112	
cgc acc tcc atc acc gtg gtg ctg cag gtt gtc agc gat gcc ggc tct	502
Arg Thr Ser Ile Thr Val Val Leu Gln Val Val Ser Asp Ala Gly Ser	
113 118 123 128	
ctc ctg gcc tgt tgt ctg aat gcc gcc tgc atg gca ttg gtg gat gca	550
Leu Leu Ala Cys Cys Leu Asn Ala Ala Cys Met Ala Leu Val Asp Ala	
129 134 139 144	
ggg gtg ccc atg cgg gct ctc ttc tgt ggg gtc gcc tgc gcc ctg gac	598
Gly Val Pro Met Arg Ala Leu Phe Cys Gly Val Ala Cys Ala Leu Asp	
145 150 155 160	
tct gat ggg acc ctc gtg ctg gat cct aca tcc aag caa gaa aag gag	646
Ser Asp Gly Thr Leu Val Leu Asp Pro Thr Ser Lys Gln Glu Lys Glu	
161 166 171 176	
gcc cgg gca gtc ctg acc ttt gcc ctg gac agc gtg gaa cgg aag ctg	694
Ala Arg Ala Val Leu Thr Phe Ala Leu Asp Ser Val Glu Arg Lys Leu	
177 182 187 192	
ctg atg tcc agc acc aag ggg ctc tac tca gac act gag ctc cag cag	742
Leu Met Ser Ser Thr Lys Gly Leu Tyr Ser Asp Thr Glu Leu Gln Gln	
193 198 203 208	
tgc ctg gct gcg gcc cag gcc gct tgc caa cac gtc ttc cgt ttc tac	790
Cys Leu Ala Ala Ala Gln Ala Ala Ser Gln His Val Phe Arg Phe Tyr	
209 214 219 224	
cgg gaa tgc ctg cag agg cgt tac tcc aag agc tga ggca agctggggca	840
Arg Glu Ser Leu Gln Arg Arg Tyr Ser Lys Ser *	
225 230 235	
agggggccgct cccattgcct ccacccaactc accccctaca gcctgaagca aaccagcagc	900
ccagccttgc ctctctgacc catgggctcc ttgagcctgc agctctgtaa ccacagggct	960
cctgtgggga ggccttggcc tgtgacagcc ccaggcctg ggggcacaga tccccccagc	1020
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tttaacaaaa aaaaaaaaa	1098

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 <211> 3483  
 <212> DNA  
 <213> Homo sapiens  
 <220>  
 <221> CDS  
 <222> (94) .. (2064)

<400> 658

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gag gtt ggc cag cag ggg ggc gac ggc gac gct atg gca gag ggc agc ggg gaa	114
Met Ala Glu Gly Ser Gly Glu	
1 5	
gtg gtc aca gtg tct gcg acc ggg gct gcc aac ggc ctc aac aat ggg	162
Val Val Thr Val Ser Ala Thr Gly Ala Ala Asn Gly Leu Asn Asn Gly	
8 13 18 23	
gca ggc ggg acc tcg gcg acg acc agc aac ccg ctg tcg cgc aag ctg	210
Ala Gly Gly Thr Ser Ala Thr Thr Ser Asn Pro Leu Ser Arg Lys Leu	
24 29 34 39	
cat aag atc ctg gag acg cgg ctg gac aac gac aag gag atg tta gaa	258
His Lys Ile Leu Glu Thr Arg Leu Asp Asn Asp Lys Glu Met Leu Glu	
40 45 50 55	
gct ctc aag gca ctt tca acc ttt ttt gtt gaa aat agt ctg cgg act	306
Ala Leu Lys Ala Leu Ser Thr Phe Phe Val Glu Asn Ser Leu Arg Thr	
56 61 66 71	
cga aga aat tta cgt gga gat att gaa cgt aaa agt tta gcc atc aat	354
Arg Arg Asn Leu Arg Gly Asp Ile Glu Arg Lys Ser Leu Ala Ile Asn	
72 77 82 87	
gaa gaa ttt gta agc att ttc aag gaa gtg aag gag gaa ctt gaa agc	402
Glu Glu Phe Val Ser Ile Phe Lys Glu Val Lys Glu Glu Leu Glu Ser	
88 93 98 103	
ata agc gaa gat gtt caa gca atg agc aac tgt tgt caa gat atg aca	450
Ile Ser Glu Asp Val Gln Ala Met Ser Asn Cys Cys Gln Asp Met Thr	
104 109 114 119	
agt cgc cta cag gca gca aag gaa cag act caa gat tta ata gtt aaa	498
Ser Arg Leu Gln Ala Ala Lys Glu Gln Thr Gln Asp Leu Ile Val Lys	
120 125 130 135	
acc act aag ctt caa tct gaa agc caa aaa tta gag ata aga gct caa	546
Thr Thr Lys Leu Gln Ser Glu Ser Gln Lys Leu Glu Ile Arg Ala Gln	
136 141 146 151	
gtt gca gat gcc ttc tta tcc aag ttc caa ctg act tct gat gaa atg	594
Val Ala Asp Ala Phe Leu Ser Lys Phe Gln Leu Thr Ser Asp Glu Met	
152 157 162 167	
agt ctt ctt cga ggt aca aga gaa gga ccc att act gag gat ttt ttc	642
Ser Leu Leu Arg Gly Thr Arg Glu Gly Pro Ile Thr Glu Asp Phe Phe	
168 173 178 183	
aag gca ctg gga aga gta aaa cag att cat aat gat gtc aaa gtt ctc	690
Lys Ala Leu Gly Arg Val Lys Gln Ile His Asn Asp Val Lys Val Leu	
184 189 194 199	
ttg cgt aca aat caa caa acg gca ggt tta gaa att atg gaa cag atg	738
Leu Arg Thr Asn Gln Gln Thr Ala Gly Leu Glu Ile Met Glu Gln Met	

200	205	210	215	
gcc tta ctt caa gaa acg gct tat gaa aga ctt tac cga tgg gct caa				786
Ala Leu Leu Gln Glu Thr Ala Tyr Glu Arg Leu Tyr Arg Trp Ala Gln				
216	221	226	231	
agt gaa tgc aga aca ttg aca caa gaa tca tgt gac gta tct cca gta				834
Ser Glu Cys Arg Thr Leu Thr Gln Glu Ser Cys Asp Val Ser Pro Val				
232	237	242	247	
ttg aca cag gca atg gaa gcc ctg cag gac aga cct gtc tta tat aaa				882
Leu Thr Gln Ala Met Glu Ala Leu Gln Asp Arg Pro Val Leu Tyr Lys				
248	253	258	263	
tat acc tta gat gaa ttt gga aca gcc aga aga agt aca gtt gtt cgt				930
Tyr Thr Leu Asp Glu Phe Gly Thr Ala Arg Arg Ser Thr Val Val Arg				
264	269	274	279	
gga ttt att gat gcg ctc aca aga ggg ggc ccc gga ggt aca cct aga				978
Gly Phe Ile Asp Ala Leu Thr Arg Gly Gly Pro Gly Gly Thr Pro Arg				
280	285	290	295	
cca att gaa atg cat tct cat gac cct ttg agg tat gga gat atg ttg				1026
Pro Ile Glu Met His Ser His Asp Pro Leu Arg Tyr Gly Asp Met Leu				
296	301	306	311	
gct tgg ctc cat caa gct act gct tct gaa aag gaa cac ctt gaa gct				1074
Ala Trp Leu His Gln Ala Thr Ala Ser Glu Lys Glu His Leu Glu Ala				
312	317	322	327	
ctc tta aag cat gta act aca caa ggt gtt gaa gaa aat att caa gaa				1122
Leu Leu Lys His Val Thr Thr Gln Gly Val Glu Glu Asn Ile Gln Glu				
328	333	338	343	
gtt gtt ggg cat atc act gaa ggt gtg tgc agg cct cta aag gtt cga				1170
Val Val Gly His Ile Thr Glu Gly Val Cys Arg Pro Leu Lys Val Arg				
344	349	354	359	
att gag caa gta ata gtt gct gaa cct ggg gca gtt tta tta tat aaa				1218
Ile Glu Gln Val Ile Val Ala Glu Pro Gly Ala Val Leu Leu Tyr Lys				
360	365	370	375	
att tct aat ctc ctc aaa ttt tat cac cat aca atc agt ggt att gtt				1266
Ile Ser Asn Leu Leu Lys Phe Tyr His His Thr Ile Ser Gly Ile Val				
376	381	386	391	
gga aat agt gca act gca tta ttg act acc att gaa gaa atg cat ttg				1314
Gly Asn Ser Ala Thr Ala Leu Leu Thr Thr Ile Glu Glu Met His Leu				
392	397	402	407	
cta agc aaa aaa ata ttc ttc aat agc ttg agt ctt cat gca agt aaa				1362
Leu Ser Lys Lys Ile Phe Phe Asn Ser Leu Ser Leu His Ala Ser Lys				
408	413	418	423	
tta atg gac aag gtt gaa ctc cca cca cct gat ctt gga cca agt tct				1410
Leu Met Asp Lys Val Glu Leu Pro Pro Pro Asp Leu Gly Pro Ser Ser				
424	429	434	439	

gca cta aat cag aca ctc atg ttg ctg cgt gaa gtt tta gca tct cac	1458
Ala Leu Asn Gln Thr Leu Met Leu Leu Arg Glu Val Leu Ala Ser His	
440 445 450 455	
gat tct tca gtt gta cca tta gat gct cgt caa gct gat ttt gtg cag	1506
Asp Ser Ser Val Val Pro Leu Asp Ala Arg Gln Ala Asp Phe Val Gln	
456 461 466 471	
gta tta tca tgt gtc ttg gat cct ctc cta cag atg tgt gct gta tca	1554
Val Leu Ser Cys Val Leu Asp Pro Leu Leu Gln Met Cys Ala Val Ser	
472 477 482 487	
gcc agc aat tta ggc aca gct gac atg gcc act ttc atg gtc aat tca	1602
Ala Ser Asn Leu Gly Thr Ala Asp Met Ala Thr Phe Met Val Asn Ser	
488 493 498 503	
cta tat atg atg aag aca aca tta gct cta ttt gaa ttc act gac aga	1650
Leu Tyr Met Met Lys Thr Thr Leu Ala Leu Phe Glu Phe Thr Asp Arg	
504 509 514 519	
cgt ctg gaa atg cta cag ttt cag atc gaa gca cat ttg gac aca ctt	1698
Arg Leu Glu Met Leu Gln Phe Gln Ile Glu Ala His Leu Asp Thr Leu	
520 525 530 535	
ata aat gag caa gcc tct tat gtt tta act agg gta ggc ttg agt tac	1746
Ile Asn Glu Gln Ala Ser Tyr Val Leu Thr Arg Val Gly Leu Ser Tyr	
536 541 546 551	
atc tat aac act gta cag caa cat aaa cct gaa cag ggc tct tta gct	1794
Ile Tyr Asn Thr Val Gln Gln His Lys Pro Glu Gln Gly Ser Leu Ala	
552 557 562 567	
aat atg ccc aac cta gat tct gtg aca ctg aag gct gca atg gtt cag	1842
Asn Met Pro Asn Leu Asp Ser Val Thr Leu Lys Ala Ala Met Val Gln	
568 573 578 583	
ttt gat cgt tat ctg tca gcc cca gac aac cta ttg ata cca cag ctg	1890
Phe Asp Arg Tyr Leu Ser Ala Pro Asp Asn Leu Leu Ile Pro Gln Leu	
584 589 594 599	
aac ttt ctt cta agt gcc aca gtg aaa gag cag atc gta aaa caa tct	1938
Asn Phe Leu Leu Ser Ala Thr Val Lys Glu Gln Ile Val Lys Gln Ser	
600 605 610 615	
aca gaa tta gtc tgc aga gcc tat ggt gaa gtg tat gca gcc gtg atg	1986
Thr Glu Leu Val Cys Arg Ala Tyr Gly Glu Val Tyr Ala Ala Val Met	
616 621 626 631	
aat cca atc aat gaa tac aaa gat cca gag aac att ctt cac cga tcg	2034
Asn Pro Ile Asn Glu Tyr Lys Asp Pro Glu Asn Ile Leu His Arg Ser	
632 637 642 647	
ccg cag caa gtg cag acg ctt ctt tcc tga t tatcttattt cattgtgtta	2085
Pro Gln Gln Val Gln Thr Leu Leu Ser *	
648 653	

gcaaaatatg acctccctaa aacactgaag gttatTTTTT attctttgaa tttttacttt	2145
ataatttgat agttacagtt ttctttgtat cataagattg taagtccga taattTTTTT	2205
ttttttggtc tcagtaacag ggaagtaagt aacatggtga cctgagctag tattgctgtg	2265
tatctactct aaatgagatg atctatTTTT ttgctagcca tctctccagc tctgcagttt	2325
tcactgtatt caggaagcat aaagtagtat gaaaggTTTg aagaattTTTT ttttacaaga	2385
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aagagttggt agcagagaga aaaataacag tgaatgtgct cctgggtgtat atggcagtga	2625
atctcctttc tgttctactt tagcactacta tatatatttg actgtgtaca ttcttatgca	2685
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atgagctcta agcatgtaga tagcctgagc tgtgtctaag cctgggtgtt aaagatgggt	2865
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taaattacaa atgagaaaat tgaagcacia ggaaaaaaat aactagtttg aaatattttg	3225
aaaagtaata acataaaaact agtatttgta gaagattatg tgttgatatat aacaaattag	3285
tatttataga atatgacctt ttatctgaa gtttataatt gtttatacct aatacagttc	3345
tttttgagat aagaatgatt atataatcgt tatccatttg ggtataaatc tgtatTTTTa	3405
gttttttccc tttgattagt atgtgttaca tataaagaca gaaaataaag tataaatcaa	3465
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agacattttc taggaag      atg gtg gca gaa aaa gag acc ctg agc tta aac      230
Met Val Ala Glu Lys Glu Thr Leu Ser Leu Asn
      1                      5

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aaa tgc cca gac aag atg ccg aag agg acc aag ctg ctg gca caa cag 278  
Lys Cys Pro Asp Lys Met Pro Lys Arg Thr Lys Leu Leu Ala Gln Gln  
12 17 22 27

ccg ctc ccg gtg cac cag cct cac tct ctg gtt tct gag ggt ttc aca 326  
Pro Leu Pro Val His Gln Pro His Ser Leu Val Ser Glu Gly Phe Thr  
28 33 38 43

gtc aaa gcc atg atg aaa aac tca gtc gtg aga ggc cct cca gct gca 374  
Val Lys Ala Met Met Lys Asn Ser Val Val Arg Gly Pro Pro Ala Ala  
44 49 54 59

ggg gca ttt aaa gaa aga cca acc aag ccc aca gca ttt cga aaa ttc 422  
Gly Ala Phe Lys Glu Arg Pro Thr Lys Pro Thr Ala Phe Arg Lys Phe  
60 65 70 75

tat	gag	cga	ggt	gac	ttc	cca	att	gcc	ctt	gag	cat	gat	tcg	aaa	gga	470
Tyr	Glu	Arg	Gly	Asp	Phe	Pro	Ile	Ala	Leu	Glu	His	Asp	Ser	Lys	Gly	
76					81					86					91	

aac aaa atc gcc tgg aag gta gaa att gag aag ctg gat tac cat cat 518  
Asn Lys Ile Ala Trp Lys Val Glu Ile Glu Lys Leu Asp Tyr His His  
92 97 102 107

tat	ctg	cct	ctg	ttt	ttt	gat	ggg	ctt	tgt	gaa	atg	aca	ttt	ccc	tat	566
Tyr	Leu	Pro	Leu	Phe	Phe	Asp	Gly	Leu	Cys	Glu	Met	Thr	Phe	Pro	Tyr	
108					113					118					123	

gag ttt ttt gct cgg caa gga atc cac gac atg ctg gaa cac ggt ggg 614  
Glu Phe Phe Ala Arg Gln Gly Ile His Asp Met Leu Glu His Gly Gly  
124 129 134 139

aac aag atc cta cct gtc ctt cca cag ctc att atc ccg ata aaa aat 662  
Asn Lys Ile Leu Pro Val Leu Pro Gln Leu Ile Ile Pro Ile Lys Asn  
140 145 150 155

gcc ttg aac ctc cga aac cga cag gtc atc tgt gtc act ctc aag gtc 710  
Ala Leu Asn Leu Arg Asn Arg Gln Val Ile Cys Val Thr Leu Lys Val  
156 161 166 171

ctc	cag	cat	ctg	gtt	gtg	tca	gct	gag	atg	gtg	ggc	aag	gcc	ttg	gtg	758
Leu	Gln	His	Leu	Val	Val	Ser	Ala	Glu	Met	Val	Gly	Lys	Ala	Leu	Val	
172					177					182					187	

cct tat tac cgt caa atc ctc cct gtc ctg aac atc ttt aag aat atg	806
Pro Tyr Tyr Arg Gln Ile Leu Pro Val Leu Asn Ile Phe Lys Asn Met	
188 193 198 203	

aat gtg aac tcc gga gac ggc att gac tac agc cag cag aag agg gag	854
Asn Val Asn Ser Gly Asp Gly Ile Asp Tyr Ser Gln Gln Lys Arg Glu	
204 209 214 219	

aac att ggg gac ttg atc cag gag aca ctg gag gcc ttc gag cgc tac	902
Asn Ile Gly Asp Leu Ile Gln Glu Thr Leu Glu Ala Phe Glu Arg Tyr	
220 225 230 235	

gga gga gaa aat gcc ttt atc aac att aag tac gtg gtc cca acc tac	950
Gly Gly Glu Asn Ala Phe Ile Asn Ile Lys Tyr Val Val Pro Thr Tyr	
236 241 246 251	

gag tct tgc ttg cta aac taa ca gtggcagcag ctgggacttg aaacctcccc	1003
Glu Ser Cys Leu Leu Asn *	
252 257	

ttggtgttgg gatcatctgt ctctgttgct tttagcatct cattccttgt gacttccaca	1063
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gctttctttt ctacagctgc taaaatagtg gcttatgggc cattggactg ttagccctat	1123
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tgagagcaag gctttccaat acataaatag tgtctgttgc ttagattaca atagtgtact	1183
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gtgcttattt gttctaagag aagaattgct tctttataca gctccgacag aagcaggagt	1243
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ccgagttaaa ccttcagttg tatagacaat aaactataat tttcatatgc aattca	1299
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aa atg gtc acc ctg ctg att gcc ttc atc tgt gtg cgg agc tcc ctg	167
Met Val Thr Leu Leu Ile Ala Phe Ile Cys Val Arg Ser Ser Leu	
1 5 10	

tgg acc aac tac agc gcc tac agc tac ttt gaa gtg gtc acc att tgc	215
Trp Thr Asn Tyr Ser Ala Tyr Ser Tyr Phe Glu Val Val Thr Ile Cys	
16 21 26 31	

gac ttg ata atg atc ctc gcc ttt tac ctg gtc cac ctc ttc cgc ttc	263
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Asp	Leu	Ile	Met	Ile	Leu	Ala	Phe	Tyr	Leu	Val	His	Leu	Phe	Arg	Phe		
32					37					42					47		
tac	cgc	gtg	ctc	acc	tgt	atc	agc	tgg	ccc	ctg	tcg	gaa	ctt	ctg	cac		311
Tyr	Arg	Val	Leu	Thr	Cys	Ile	Ser	Trp	Pro	Leu	Ser	Glu	Leu	Leu	His		
48					53					58					63		
tat	tta	atc	ggc	acc	ctg	ctc	ctc	ctc	atc	gcc	tcc	att	gtg	gca	gct		359
Tyr	Leu	Ile	Gly	Thr	Leu	Leu	Leu	Leu	Ile	Ala	Ser	Ile	Val	Ala	Ala		
64					69					74					79		
tcc	aag	agt	tac	aac	cag	agc	gga	ctg	gta	gcc	gga	gcg	atc	ttt	ggc		407
Ser	Lys	Ser	Tyr	Asn	Gln	Ser	Gly	Leu	Val	Ala	Gly	Ala	Ile	Phe	Gly		
80					85					90					95		
ttc	atg	gcc	acc	ttc	ctc	tgc	atg	gca	agc	ata	tgg	ctg	tcc	tat	aag		455
Phe	Met	Ala	Thr	Phe	Leu	Cys	Met	Ala	Ser	Ile	Trp	Leu	Ser	Tyr	Lys		
96					101					106					111		
atc	tcg	tgt	gta	acc	cag	tcc	aca	gat	gca	gcc	gtc	tga	tgaggccaca				504
Ile	Ser	Cys	Val	Thr	Gln	Ser	Thr	Asp	Ala	Ala	Val	*					
112					117					122							
acccttaggc	ccctcaggag	ctttgcagag	aggaggacgt	gtactccagg	cgaggcctct												564
ggacctgtgt	tctgtgccca	aagtcctgtc	aggctgggtgg	gcaccaggaa	aggcctgcac												624
cctcttcctg	ctctcccagg	aagccagctc	cctgagctcc	tgagccagcc	ggaaactctt												684
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aaatgttttc	tgcttctctg	cttctagaac	cacctcaggt	actgatgaac	cccacttagc												804
acagctgaag	gggtttgtga	atactccgc	ctaaatccct	tctacttcac	tcctcagggg												864
agtgaagtgc	cttaagaaac	aaagccctgt	cctaatttat	ctagcttgct	agtcgggtct												924
tagagatacc	ctctttcctg	aagtgaggcg	tgctgtaga	aacactatgt	ggtcagcctg												984
tccccaagga	gatcttgtgt	ctcctctcca	totctgcctt	tgttaccagt	gtgcatgtgt												1044
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ccttgttgcg agagaggatt tactccaaca accagtatgc ccggcagttc atcatctcct	180
ggatcctggt tctggagtcg gtgccagaca ttaacctgct ggattacctg ccggagatcc	240
tggatggact cttccagatc ctgggtgaca atggcaaaga gattcgcaaa atg tgt	296
	Met Cys
	1
gag gtt gtt ctt gga gaa ttc tta aaa gaa att aag aag aac ccc tcc	344
Glu Val Val Leu Gly Glu Phe Leu Lys Glu Ile Lys Lys Asn Pro Ser	
3 8 13 18	
agt gtg aag ttt gct gag atg gcc aac atc ctg gtg atc cac tgc cag	392
Ser Val Lys Phe Ala Glu Met Ala Asn Ile Leu Val Ile His Cys Gln	
19 24 29 34	
aca aca gat gac ctc atc cag ctg aca gcc atg tgc tgg atg cgg gag	440
Thr Thr Asp Asp Leu Ile Gln Leu Thr Ala Met Cys Trp Met Arg Glu	
35 40 45 50	
ttc atc cag ctg gcg ggc cgc gtc atg ctg cct tac tcc tcc ggg atc	488
Phe Ile Gln Leu Ala Gly Arg Val Met Leu Pro Tyr Ser Ser Gly Ile	
51 56 61 66	
ctg act gct gtc ttg ccc tgc ttg gcc tac gat gac cgc aag aaa agc	536
Leu Thr Ala Val Leu Pro Cys Leu Ala Tyr Asp Asp Arg Lys Lys Ser	
67 72 77 82	
atc aaa gaa gtg gcc aac gtg tgc aac cag agc ctg atg aag ctg gtc	584
Ile Lys Glu Val Ala Asn Val Cys Asn Gln Ser Leu Met Lys Leu Val	
83 88 93 98	
acc ccc gag gac gac gag ctg gat gag ctg aga cct ggg cag agg cag	632
Thr Pro Glu Asp Asp Glu Leu Asp Glu Leu Arg Pro Gly Gln Arg Gln	
99 104 109 114	
gca gag ccc acc cct gac gat gcc ctg cca aag cag gag ggc aca gcc	680
Ala Glu Pro Thr Pro Asp Asp Ala Leu Pro Lys Gln Glu Gly Thr Ala	
115 120 125 130	
agt ggg tgc act gag gcg cac gac ttc cgt gac atc cct cca atg atg	728
Ser Gly Cys Thr Glu Ala His Asp Phe Arg Asp Ile Pro Pro Met Met	
131 136 141 146	
cgc aac tcc cta ctc gtg aga aaa cgt gag acc aac cca aac ggg gag	776
Arg Asn Ser Leu Leu Val Arg Lys Arg Glu Thr Asn Pro Asn Gly Glu	
147 152 157 162	
aca ctc tgc aga gtg acc agc gct tca aaa gtg tca agt tta tga aag	824
Thr Leu Cys Arg Val Thr Ser Ala Ser Lys Val Ser Ser Leu *	
163 168 173	
acacacagat tgaggggctg caacagattg gaggagacaa agaagacagt ttagctaaat	884

gcagtgtgag atcctggaac aaaaggccag gaatggaaaa actcgtgatg ttcaaattag 944  
 ggtaatcatt tagttaatgg tagtgtatcg aagttaacct tctggggttg atcattgaac 1004  
 tatggagccg ggcattggtg ctcacgctg taatcccagc actttgggag gctgaggtgg 1064  
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 cccgtagcgc agggcagcct ttaaccttta gcccagtgg gcgccagcca ctcagatcgc 180  
 ttcttggttg t atg tgt agc ggc agt ggc cgc cgg cgg agc agt ctg agc 230  
           Met Cys Ser Gly Ser Gly Arg Arg Arg Ser Ser Leu Ser  
           1                  5                  10  
 ccg acg atg agg ccg ggg acg gga gct gag cgt gga ggc ctc atg atg 278  
 Pro Thr Met Arg Pro Gly Thr Gly Ala Glu Arg Gly Gly Leu Met Met  
   14                  19                  24                  29  
 ggg cac cct ggc atg cat tat gcc cca atg gga atg cac cct atg ggt 326  
 Gly His Pro Gly Met His Tyr Ala Pro Met Gly Met His Pro Met Gly  
   30                  35                  40                  45  
 cag aga gcg aat atg cct cct gta cct cat gga atg atg ccg cag atg 374  
 Gln Arg Ala Asn Met Pro Pro Val Pro His Gly Met Met Pro Gln Met  
   46                  51                  56                  61  
 atg ccc cct atg gga ggg cca cca atg gga caa atg cct gga atg atg 422  
 Met Pro Pro Met Gly Gly Pro Pro Met Gly Gln Met Pro Gly Met Met  
   62                  67                  72                  77  
 tcg tca gta atg cct gga atg atg atg tct cat atg tct cag gct tcc 470  
 Ser Ser Val Met Pro Gly Met Met Met Ser His Met Ser Gln Ala Ser  
   78                  83                  88                  93  
 atg cag cct gcc tta ccg cca gga gta aat agt atg gat gta gca gca 518  
 Met Gln Pro Ala Leu Pro Pro Gly Val Asn Ser Met Asp Val Ala Ala  
   94                  99                  104                  109

ggt aca gca tct ggt gca aaa tca atg tgg act gaa cat aaa tca cct	566
Gly Thr Ala Ser Gly Ala Lys Ser Met Trp Thr Glu His Lys Ser Pro	
110 115 120 125	
gat gga agg act tac tac tac aac act gaa acc aaa cag tct acc tgg	614
Asp Gly Arg Thr Tyr Tyr Tyr Asn Thr Glu Thr Lys Gln Ser Thr Trp	
126 131 136 141	
gag aaa cca gat gat ctt aaa aca cct gct gag caa ctc tta tct aaa	662
Glu Lys Pro Asp Asp Leu Lys Thr Pro Ala Glu Gln Leu Leu Ser Lys	
142 147 152 157	
tgc ccc tgg aag gaa tac aaa tca gat tct gga aag cct tac tat tat	710
Cys Pro Trp Lys Glu Tyr Lys Ser Asp Ser Gly Lys Pro Tyr Tyr Tyr	
158 163 168 173	
aat tct caa aca aaa gaa tct cgc tgg gcc aaa cct aaa gaa ctt gag	758
Asn Ser Gln Thr Lys Glu Ser Arg Trp Ala Lys Pro Lys Glu Leu Glu	
174 179 184 189	
gat ctt gaa gga tac cag aat acc att gtt gct gga agt ctt att aca	806
Asp Leu Glu Gly Tyr Gln Asn Thr Ile Val Ala Gly Ser Leu Ile Thr	
190 195 200 205	
aaa tca aac ctg cat gca atg atc aaa gct gaa gaa agc agt aag caa	854
Lys Ser Asn Leu His Ala Met Ile Lys Ala Glu Glu Ser Ser Lys Gln	
206 211 216 221	
gaa gag tgc acc aca aca tca aca gcc cca gtc cct aca aca gaa att	902
Glu Glu Cys Thr Thr Thr Ser Thr Ala Pro Val Pro Thr Thr Glu Ile	
222 227 232 237	
ccg acc aca atg agc acc atg gct gct gcc gaa gca gca gct gct gtt	950
Pro Thr Thr Met Ser Thr Met Ala Ala Ala Glu Ala Ala Ala Val	
238 243 248 253	
gtt gca gca gca gca gcg gcc agc agc agc agc agc tgc agc caa tgc	998
Val Ala Ala Ala Ala Ala Gly Ser Ser Ser Ser Ser Cys Ser Gln Cys	
254 259 264 269	
taa tgct tccacttctg cttctaatac tgtcagtga actgttccag ttgttctga	1055
*	
270	
gcctgaagtt acttccattg ttgctactgt tgtagataat gagaatacag taactatttc	1115
aactgaggaa caagcacaac ttactagtac ccctgctatt caggatcaaa gtgtggaagt	1175
atccagtaat actggagaag aaacatctaa gcaagaaact gtagctgatt ttactccaa	1235
aaaagaagag gaggagagcc aaccagcaaa gaaaacatac acttggaata caaaggaaga	1295
ggcaaagcaa gcttttaag aattattgaa agaaaagcgg gtaccatoga atgcttcatg	1355
ggagcaggct atgaaaatga ttattaatga tccacgatac agtgctttgg caaagttaag	1415
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gatctctcga ggatccgaat tcgcggccgc gtcgacgcgg gatttgccgc cgccgcc 117

atg ccg tgc tcc ccg ctg cgg gtg gcg gtg gtg tgc tgc agc aac cag 165

Met Pro Ser Ser Pro Leu Arg Val Ala Val Val Cys Ser Ser Asn Gln

1 5 10 15

aac cgg agc atg gag gcg cac aac atc ctc agc aaa cgg gga ttc agc 213

Asn Arg Ser Met Glu Ala His Asn Ile Leu Ser Lys Arg Gly Phe Ser

17 22 27 32

gtc cga tcc ttt gga aca ggg act cac gtg aag ctt cca gga cca gct 261

Val Arg Ser Phe Gly Thr Gly Thr His Val Lys Leu Pro Gly Pro Ala

33 38 43 48

ccc gac aag ccc aat gtt tat gat ttc aaa acc aca tat gac cag atg 309

Pro Asp Lys Pro Asn Val Tyr Asp Phe Lys Thr Thr Tyr Asp Gln Met

49 54 59 64

tac aat gat ctt ctt agg aaa gac aaa gaa ctc tat aca cag aat ggg 357

Tyr Asn Asp Leu Leu Arg Lys Asp Lys Glu Leu Tyr Thr Gln Asn Gly

65 70 75 80

att tta cat atg ctg gac aga aat aag aga atc aag ccc cgg cca gaa 405

Ile Leu His Met Leu Asp Arg Asn Lys Arg Ile Lys Pro Arg Pro Glu

81 86 91 96

aga ttc cag aac tgc aaa gac ctg ttt gat ctg atc ctc act tgc gaa 453

Arg Phe Gln Asn Cys Lys Asp Leu Phe Asp Leu Ile Leu Thr Cys Glu

97 102 107 112

gag aga gtg tat gac cag gtg gtg gaa gat ctg aat tcc aga gaa cag 501

Glu Arg Val Tyr Asp Gln Val Val Glu Asp Leu Asn Ser Arg Glu Gln

113 118 123 128

gag acc tgc cag cct gtg cac gtg gtc aat gtg gac atc cag gac aac 549

Glu Thr Cys Gln Pro Val His Val Val Asn Val Asp Ile Gln Asp Asn

129 134 139 144

cac gag gag gcc acc ctg ggg gcg ttt ctc atc tgt gag ctc tgc cag 597

His Glu Glu Ala Thr Leu Gly Ala Phe Leu Ile Cys Glu Leu Cys Gln

145 150 155 160

tgt atc cag cac acg gaa gac atg gag aac gag atc gac gag ctg ctg	645
Cys Ile Gln His Thr Glu Asp Met Glu Asn Glu Ile Asp Glu Leu Leu	
161 166 171 176	

cag gag ttc gag gag aag agt ggc cgc acc ttt ctg cac acc gtc tgc	693
Gln Glu Phe Glu Glu Lys Ser Gly Arg Thr Phe Leu His Thr Val Cys	
177 182 187 192	

ttc tac tga gccacgc gcccgcatgg gagccgcctc tggagcttcc tgttggtcat	749
Phe Tyr *	
193	

actttttcct tcctgacatt tgtttttact tacaggtggt ctgctggtga cggtagcatt	809
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acccaaataa actgtgcata tgaaatggga gaggagatgc caaaacgcca gatgaaagca	869
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atcaagtttc ttcttttcca cttttactta tgagcaggat attgattaca aagtttttct	929
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tctttaacca aaaaggaaag acaacggttt gtgtgcactt cccgacatac ctgtgtcttc	989
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gtgtgcctgc ctccctccc tcctcccccac cgggccggac tgtacagagc cctgctgcgg	1049
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cgtgttagga atgacctgga attgtcaata aacagatgct gctgtcaaaa aaaaagtcga	1109
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cgcggccgcg aattcggatc ctcgagagat ctctttttttt ggggttggtg gggtatcttc	1169
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atcatcgaat agatagttat atacatcatc gtcattctatc ggggtcaatg gggcgccggcg	1229
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ggggggggggg	1239
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tgtgggtgga tcaatgtggc caagttctga gtgccagctc ctccagcctcc caggctggtg	240
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cggcgctggg cgaccagagc agggctcgag atg tcc tac atc ccg ggc cag ccg	353
Met Ser Tyr Ile Pro Gly Gln Pro	
1 5	

gtc acc gcc gtg gtg caa aga gtt gaa att cac aag ctg cgt caa ggt	401
Val Thr Ala Val Val Gln Arg Val Glu Ile His Lys Leu Arg Gln Gly	
9 14 19 24	
gag aac tta atc ctg ggt ttc agc att gga ggt gga atc gac cag gac	449
Glu Asn Leu Ile Leu Gly Phe Ser Ile Gly Gly Gly Ile Asp Gln Asp	
25 30 35 40	
oct tcc cag aat ccc ttc tct gaa gac aag acg gac aag ggt att tat	497
Pro Ser Gln Asn Pro Phe Ser Glu Asp Lys Thr Asp Lys Gly Ile Tyr	
41 46 51 56	
gtc aca cgg gtg tct gaa gga ggc cct gct gaa atc gct ggg ctg cag	545
Val Thr Arg Val Ser Glu Gly Gly Pro Ala Glu Ile Ala Gly Leu Gln	
57 62 67 72	
att gga gac aag atc atg cag gtg aac ggc tgg gac atg acc atg gtc	593
Ile Gly Asp Lys Ile Met Gln Val Asn Gly Trp Asp Met Thr Met Val	
73 78 83 88	
aca cac gac cag gcc cgc aag cgg ctc acc aag cgc tcg gag gag gtg	641
Thr His Asp Gln Ala Arg Lys Arg Leu Thr Lys Arg Ser Glu Glu Val	
89 94 99 104	
gtg cgt ctg ctg gtg acg cgg cag tcg ctg cag aag gcc gtg cag cag	689
Val Arg Leu Leu Val Thr Arg Gln Ser Leu Gln Lys Ala Val Gln Gln	
105 110 115 120	
tcc atg ctg tcc tag cagccaccac catctgcgac tcttgccctgc cgcctctctg	744
Ser Met Leu Ser *	
121	
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gctcagaagg gctatagctg gtcccagagg cctggcctgg ccttccttcc cttctcccat	864
ccctggcctg gggcctctgg gaccagcttt ctctcctgga caccgaggat tggaaataag	924
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gacacacatc ctgccagagg cgctacgaag ctttgcccag atgaagccag gtgggctccg	1224
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ttagacgagg ttcgaggctc acctatcagg gcagctctca ggattgtcat tttcctcttt	1344
gccctgtggg ttttaactttt gtattttttt aatcacaagt ttgatacaaa atgtttttat	1404
cgtactcttt ggagatgccc attctacttt tgaatttagc ttttactaat tcgcatctgg	1464
aagctcagca agtgcacaag ccttactttg gttaccgtgg aaaccactgc cgccctccc	1524

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1572

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Arg Leu Ser Val Ala Ala Ala Ile Ser His Gly Arg Val Phe Arg Arg  
2 7 12 17

atg ggc ctc ggt ccc gag tcc cgc atc cat ctg ttg cgg aac ttg ctc 151  
Met Gly Leu Gly Pro Glu Ser Arg Ile His Leu Leu Arg Asn Leu Leu  
18 23 28 33

aca ggg ctg gtg cgg cac gaa cgc atc gag gca cca tgg gcg cgt gtg 199  
Thr Gly Leu Val Arg His Glu Arg Ile Glu Ala Pro Trp Ala Arg Val  
34 39 44 49

gac gaa atg agg ggc tac gcg gag aag ctc atc gac tat ggg aag ctg 247  
Asp Glu Met Arg Gly Tyr Ala Glu Lys Leu Ile Asp Tyr Gly Lys Leu  
50 55 60 65

gga gac act aac gaa cga gcc atg cgc atg gct gac ttc tgg ctc aca 295  
Gly Asp Thr Asn Glu Arg Ala Met Arg Met Ala Asp Phe Trp Leu Thr  
66 71 76 81

gag aag gat ttg atc cca aag ctg ttt caa gta ctg gcc cct cgg tac 343  
Glu Lys Asp Leu Ile Pro Lys Leu Phe Gln Val Leu Ala Pro Arg Tyr  
82 87 92 97

aaa gat caa act ggg ggc tac aca aga atg ctg cag atc cca aat cgg 391  
Lys Asp Gln Thr Gly Gly Tyr Thr Arg Met Leu Gln Ile Pro Asn Arg  
98 103 108 113

agt ttg gat cgg gcc aag atg gca gtg atc gag tat aaa ggg aat tgc 439  
Ser Leu Asp Arg Ala Lys Met Ala Val Ile Glu Tyr Lys Gly Asn Cys  
114 119 124 129



ctc cca ccc ctg cct ctg cct cgc aga gac agc cac ctt aca ctc cta 487  
 Leu Pro Pro Leu Pro Leu Pro Arg Arg Asp Ser His Leu Thr Leu Leu  
 130 135 140 145

aac cag ctg ctg cag ggt ttg cgg cag gac ctc agg caa agc cag gaa 535  
 Asn Gln Leu Leu Gln Gly Leu Arg Gln Asp Leu Arg Gln Ser Gln Glu  
 146 151 156 161

gca agc aac cac agc tcc cac aca gct caa aca cca ggg att taa ctg 583  
 Ala Ser Asn His Ser Ser His Thr Ala Gln Thr Pro Gly Ile \*  
 162 167 172

gatttgaaga gtctgcagcc cttaatcagt acccatgac acaggccttt ggagcacttt 643

tactctctga gaagaactgg agctagagat gtaaaatgga cagtcttgat ggggttgaga 703

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atatataaat ttattttattt tttccttcct gtgggatttc tggagaatga gaattatcca 823

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aaaa 887

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ctgtgcttac tgaacggcct cccoctgtat cgcttaattg agaaggtata caa atg 176  
 Met  
 1

ctc tca gtc cag cca gac acc aag ccg aaa ggt tgt gct ggc tgc aac 224  
 Leu Ser Val Gln Pro Asp Thr Lys Pro Lys Gly Cys Ala Gly Cys Asn  
 2 7 12 17

cga aag atc aag gac cgg tat ctt cta aag gca ctg gac aaa tac tgg 272  
 Arg Lys Ile Lys Asp Arg Tyr Leu Leu Lys Ala Leu Asp Lys Tyr Trp  
 18 23 28 33

cat gaa gac tgc ctg aag tgt gcc tgc tgt gac tgt cgc ttg gga gag 320  
 His Glu Asp Cys Leu Lys Cys Ala Cys Cys Asp Cys Arg Leu Gly Glu  
 34 39 44 49

gtg ggc tcc acc ctg tac act aaa gct aat ctt atc ctt tgt cgc aga	368
Val Gly Ser Thr Leu Tyr Thr Lys Ala Asn Leu Ile Leu Cys Arg Arg	
50 55 60 65	
gac tat ctg agg ctc ttt ggt gta acg gga aac tgc gct gcc tgt agt	416
Asp Tyr Leu Arg Leu Phe Gly Val Thr Gly Asn Cys Ala Ala Cys Ser	
66 71 76 81	
aag ctc atc cct gcc ttt gag atg gtg atg cgt gcc aag gac aat gtt	464
Lys Leu Ile Pro Ala Phe Glu Met Val Met Arg Ala Lys Asp Asn Val	
82 87 92 97	
tac cac ctg gac tgc ttt gca tgt cag ctt tgt aat cag aga ttt tgt	512
Tyr His Leu Asp Cys Phe Ala Cys Gln Leu Cys Asn Gln Arg Phe Cys	
98 103 108 113	
gtt gga gac aaa ttt ttc cta aag aat aac atg atc ctt tgc cag acg	560
Val Gly Asp Lys Phe Phe Leu Lys Asn Asn Met Ile Leu Cys Gln Thr	
114 119 124 129	
gac tac gag gaa ggt tta atg aaa gaa ggt tat gca ccc cag gtt cgc	608
Asp Tyr Glu Glu Gly Leu Met Lys Glu Gly Tyr Ala Pro Gln Val Arg	
130 135 140 145	
tga tcta tcaacatcac cccattaaga atacaaagca ctacattctt ttatcttttt	665
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146	
tgctccacat gtacataaga attgacacag gaacctactg aatagcgtag atataggaag	725
gcaggatggt tatatggaat aaaaggcgga ctgcatctgt atgtagtgaa attgccccag	785
ttcagagttg aatgtttatt attaaagaaa aaagtaatgt acatatggct ggattttttt	845
gcttgctatt cgtttttgtg tcaacttgga tgagatgttt attttggact attgtatata	905
atgtattgta atatttgaag cacaaatgta atacagtttt attgtgttac catttgtgtt	965
ccatttgctt ctttgtattg ttgcatttag tacaatcagt gtttaaactt actgtatatt	1025
tatgctttct gtatttacca gctattttta atgagctgta actttctagt aaagaattga	1085
aaagcaaata tcactaatga tacacagata gataaagcaa gtctatcaac attaaaaata	1145
ctaaaaaata aagacacaca cagagcattt tagtgacatc cactacttat tgccgctatg	1205
agttagagtc tatcagtggt cttgttataa cccctattt tcaggggggt aaaaatcagc	1265
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gtgctcttta cttacacaat ggctttgttt tgctttttca gccacacccc ttatgtgaac	1445
tagtgccctt gggatcacg taaaattttt tccaaagggt tactttaaaa atctgttacc	1505
acaattatga gatgattttt aagtgataaa ttaaacttct tcttgataaa attctgcca	1565



atttctgagc agcgaaagct cccttcctaa gatgcatctc gcataggctg cctatgatga 3305  
aggaccgtgc acctccactc caacagagtg ctgagtttaa aagttgacct gtgtttgtaa 3365  
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<400> 667

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atctgggacc cagggggcccc tccctacccc agctaacctc ttctggacca ggagagccaa 180  
cccagatccc actacctcc atg agt gct aca gac agg atg ggg ccc aga gct 232  
Met Ser Ala Thr Asp Arg Met Gly Pro Arg Ala  
1 5  
gtg ccg ggt ctg cgg ctg gca ctg ctg ttg ctg ctg gtg cta ggg aca 280  
Val Pro Gly Leu Arg Leu Ala Leu Leu Leu Leu Val Leu Gly Thr  
12 17 22 27  
ccc aag tca ggg gta cag ggg cag gaa ggg ctg gac ttc cct gag tac 328  
Pro Lys Ser Gly Val Gln Gly Gln Glu Gly Leu Asp Phe Pro Glu Tyr  
28 33 38 43  
gat ggt gtg gac cgt gtg atc aat gtc aat gca aag aac tac aag aat 376  
Asp Gly Val Asp Arg Val Ile Asn Val Asn Ala Lys Asn Tyr Lys Asn  
44 49 54 59  
gtg ttc aag aag tat gag gtg ctg gca ctc ctc tac cat gaa ccc ccc 424  
Val Phe Lys Lys Tyr Glu Val Leu Ala Leu Leu Tyr His Glu Pro Pro  
60 65 70 75  
gag gat gac aag gcc tca caa aga caa ttt gag atg gag gag ctg atc 472  
Glu Asp Asp Lys Ala Ser Gln Arg Gln Phe Glu Met Glu Glu Leu Ile  
76 81 86 91  
ctg gag tta gca gcc caa gtc cta gaa gac aag ggt gtt ggc ttc ggg 520  
Leu Glu Leu Ala Ala Gln Val Leu Glu Asp Lys Gly Val Gly Phe Gly  
92 97 102 107  
ctg gta gac tct gag aag gat gca gct gtg gcc aag aaa cta ggc cta 568  
Leu Val Asp Ser Glu Lys Asp Ala Ala Val Ala Lys Lys Leu Gly Leu

108	113	118	123	
act gaa gtg gac agc atg tat gta ttc aag gga gat gaa gtc att gag				616
Thr Glu Val Asp Ser Met Tyr Val Phe Lys Gly Asp Glu Val Ile Glu				
124	129	134	139	
tac gat ggc gag ttt tct gct gac acc atc gtg gag ttt ctg ctt gat				664
Tyr Asp Gly Glu Phe Ser Ala Asp Thr Ile Val Glu Phe Leu Leu Asp				
140	145	150	155	
gtc cta gag gac cct gtg gaa ttg att gaa ggt gaa cga gag ctg cag				712
Val Leu Glu Asp Pro Val Glu Leu Ile Glu Gly Glu Arg Glu Leu Gln				
156	161	166	171	
gcg ttt gag aat att gag gat gag atc aaa ctc att ggc tac ttc aag				760
Ala Phe Glu Asn Ile Glu Asp Glu Ile Lys Leu Ile Gly Tyr Phe Lys				
172	177	182	187	
agc aaa gac tca gag cat tac aaa gcc ttc gag gat gca gct gag gag				808
Ser Lys Asp Ser Glu His Tyr Lys Ala Phe Glu Asp Ala Ala Glu Glu				
188	193	198	203	
ttt cat ccc tac atc ccc ttc ttc gcc acc ttc gac agc aag gtg gca				856
Phe His Pro Tyr Ile Pro Phe Phe Ala Thr Phe Asp Ser Lys Val Ala				
204	209	214	219	
aag aag ctg acc ctg aag ctg aat gag att gat ttc tac gag gcc ttc				904
Lys Lys Leu Thr Leu Lys Leu Asn Glu Ile Asp Phe Tyr Glu Ala Phe				
220	225	230	235	
atg gaa gag cct gtg acc atc cca gac aag ccc aat agc gaa gag gag				952
Met Glu Glu Pro Val Thr Ile Pro Asp Lys Pro Asn Ser Glu Glu Glu				
236	241	246	251	
att gtc aac ttc gtt gag gag cac agg aga tca acc ctg agg aaa ctg				1000
Ile Val Asn Phe Val Glu Glu His Arg Arg Ser Thr Leu Arg Lys Leu				
252	257	262	267	
aag ccg gag agt atg tat gag acc tgg gag gat gat atg gat gga atc				1048
Lys Pro Glu Ser Met Tyr Glu Thr Trp Glu Asp Asp Met Asp Gly Ile				
268	273	278	283	
cac att gtg gcc ttc gca gag gaa gct gat cct gat ggt ttc gag ttc				1096
His Ile Val Ala Phe Ala Glu Glu Ala Asp Pro Asp Gly Phe Glu Phe				
284	289	294	299	
tta gag act ctc aag gct gtg gcc caa gat aac act gaa aac cca gat				1144
Leu Glu Thr Leu Lys Ala Val Ala Gln Asp Asn Thr Glu Asn Pro Asp				
300	305	310	315	
ctt agc atc atc tgg att gac cct gat gac ttc ccc ctg ctg gtc cca				1192
Leu Ser Ile Ile Trp Ile Asp Pro Asp Asp Phe Pro Leu Leu Val Pro				
316	321	326	331	
tac tgg gag aag acg ttt gac atc gac ttg tca gcc cca caa ata gga				1240
Tyr Trp Glu Lys Thr Phe Asp Ile Asp Leu Ser Ala Pro Gln Ile Gly				
332	337	342	347	

gtc gtc aat gtt act gat gcg gat agg cta tgg atg gaa atg gac gat	1288
Val Val Asn Val Thr Asp Ala Asp Arg Leu Trp Met Glu Met Asp Asp	
348 353 358 363	

gag gag gac ctg cct tct gct gag gag ctg gag gac tgg ctg gag gat	1336
Glu Glu Asp Leu Pro Ser Ala Glu Glu Leu Glu Asp Trp Leu Glu Asp	
364 369 374 379	

gtc ctg gag ggc gag atc aac aca gag gac gat gac gat gat gat gat	1384
Val Leu Glu Gly Glu Ile Asn Thr Glu Asp Asp Asp Asp Asp Asp Asp	
380 385 390 395	

gac tag ttgctatggc aaccatcttt cagccccact ggtcttttca tgctctctcc	1440
Asp *	
396	

tgccctccct tgccttccc tgagttctc caggagact aggttattct ctgccataga	1500
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gctaactggg gtctatatgc tgggtgctga gacactgac cccctcattt gatgagcaaa	1560
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tgagctactt ttccctagac accaggccag ctctctctta tctgacttct gtttcttctc	1620
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ccataactta cttgtatcta ttatgtgtct cttccatcac tctccatact ctttcttctg	1680
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attctctctc agccatata atgggcccc tctctgttct gttccctcca tctatgcaca	1740
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gctttccccc actctctcta atcctgtatc tttctgactg tctgtcctt ggccagaagg	1800
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aaggagagaat actgtgtttg ggactgtatc tcagcaatca cttgttaatg tatttggggc	1860
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aatgagagg cctcaataaa gacatctggg gcagcatgaa aaaaaaaaa aa	1912
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 <222> (243) .. (1694)

<400> 668

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agtaaaaccg ctgcgatcgc ggaggcggcg gccaggccga gaggcaggcc gggcaggggt	180
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gtcggacgca gggcgctggg ccgggtttcg gcttcggcca cagctttttt tctcaagggt	240
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ca atg aaa gcc ttc cac act ttc tgt gtt gtc ctt ctg gtg ttt ggg	287
Met Lys Ala Phe His Thr Phe Cys Val Val Leu Leu Val Phe Gly	

1	5	10
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agt gtc tct gaa gcc aag ttt gat gat ttt gag gat gag gag gac ata	335
Ser Val Ser Glu Ala Lys Phe Asp Asp Phe Glu Asp Glu Glu Asp Ile	
16 21 26 31	
gta gag tat gat gat aat gac ttc gct gaa ttt gag gat gtc atg gaa	383
Val Glu Tyr Asp Asp Asn Asp Phe Ala Glu Phe Glu Asp Val Met Glu	
32 37 42 47	
gac tct gtt act gaa tct cct caa cgg gtc ata atc act gaa gat gat	431
Asp Ser Val Thr Glu Ser Pro Gln Arg Val Ile Ile Thr Glu Asp Asp	
48 53 58 63	
gaa gat gag acc act gtg gag ttg gaa ggg cag gat gaa aac caa gaa	479
Glu Asp Glu Thr Thr Val Glu Leu Glu Gly Gln Asp Glu Asn Gln Glu	
64 69 74 79	
gga gat ttt gaa gat gca gat acc cag gag gga gat act gag agt gaa	527
Gly Asp Phe Glu Asp Ala Asp Thr Gln Glu Gly Asp Thr Glu Ser Glu	
80 85 90 95	
cca tat gat gat gaa gaa ttt gaa ggt tat gaa gac aaa cca gat act	575
Pro Tyr Asp Asp Glu Glu Phe Glu Gly Tyr Glu Asp Lys Pro Asp Thr	
96 101 106 111	
tct tct agc aaa aat aaa gac cca ata acg att gtt gat gtt cct gca	623
Ser Ser Ser Lys Asn Lys Asp Pro Ile Thr Ile Val Asp Val Pro Ala	
112 117 122 127	
cac ctc cag aac agc tgg gag agt tat tat cta gaa att ttg atg gtg	671
His Leu Gln Asn Ser Trp Glu Ser Tyr Tyr Leu Glu Ile Leu Met Val	
128 133 138 143	
act ggt ctg ctt gct tat atc atg aat tac atc att ggg aag aat aaa	719
Thr Gly Leu Leu Ala Tyr Ile Met Asn Tyr Ile Ile Gly Lys Asn Lys	
144 149 154 159	
aac agt cgc ctt gca cag gcc tgg ttt aac act cat agg gag ctt ttg	767
Asn Ser Arg Leu Ala Gln Ala Trp Phe Asn Thr His Arg Glu Leu Leu	
160 165 170 175	
gag agc aac ttt act tta gtg ggg gat gat gga act aac aaa gaa gcc	815
Glu Ser Asn Phe Thr Leu Val Gly Asp Asp Gly Thr Asn Lys Glu Ala	
176 181 186 191	
aca agc aca gga aag ttg aac cag gag aat gag cac atc tat aac ctg	863
Thr Ser Thr Gly Lys Leu Asn Gln Glu Asn Glu His Ile Tyr Asn Leu	
192 197 202 207	
tgg tgt tct ggt cga gtg tgc tgt gag ggc atg ctt atc cag ctg agg	911
Trp Cys Ser Gly Arg Val Cys Cys Glu Gly Met Leu Ile Gln Leu Arg	
208 213 218 223	
ttc ctc aag aga caa gac tta ctg aat gtc ctg gcc cgg atg atg agg	959
Phe Leu Lys Arg Gln Asp Leu Leu Asn Val Leu Ala Arg Met Met Arg	
224 229 234 239	

cca gtg agt gat caa gtg caa ata aaa gta acc atg aat gat gaa gac	1007
Pro Val Ser Asp Gln Val Gln Ile Lys Val Thr Met Asn Asp Glu Asp	
240 245 250 255	
atg gat acc tac gta ttt gct gtt ggc aca cgg aaa gcc ttg gtg cga	1055
Met Asp Thr Tyr Val Phe Ala Val Gly Thr Arg Lys Ala Leu Val Arg	
256 261 266 271	
cta cag aaa gag atg cag gat ttg agt gag ttt tgt agt gat aaa cct	1103
Leu Gln Lys Glu Met Gln Asp Leu Ser Glu Phe Cys Ser Asp Lys Pro	
272 277 282 287	
aag tct gga gca aag tat gga ctg ccg gac tct ttg gcc atc ctg tca	1151
Lys Ser Gly Ala Lys Tyr Gly Leu Pro Asp Ser Leu Ala Ile Leu Ser	
288 293 298 303	
gag atg gga gaa gtc aca gac gga atg atg gat aca aag atg gtt cac	1199
Glu Met Gly Glu Val Thr Asp Gly Met Met Asp Thr Lys Met Val His	
304 309 314 319	
ttt ctt aca cac tat gct gac aag att gaa tct gtt cat ttt tca gac	1247
Phe Leu Thr His Tyr Ala Asp Lys Ile Glu Ser Val His Phe Ser Asp	
320 325 330 335	
cag ttc tct ggt cca aaa att atg caa gag gaa ggt cag cct tta aag	1295
Gln Phe Ser Gly Pro Lys Ile Met Gln Glu Glu Gly Gln Pro Leu Lys	
336 341 346 351	
cta cct gac act aag agg aca ctg ttg ttt aca ttt aat gtg cct ggc	1343
Leu Pro Asp Thr Lys Arg Thr Leu Leu Phe Thr Phe Asn Val Pro Gly	
352 357 362 367	
tca ggt aac act tac cca aag gat atg gag gca ctg cta ccc ctg atg	1391
Ser Gly Asn Thr Tyr Pro Lys Asp Met Glu Ala Leu Leu Pro Leu Met	
368 373 378 383	
aac atg gtg att tat tct att gat aaa gcc aaa aag ttc cga ctc aac	1439
Asn Met Val Ile Tyr Ser Ile Asp Lys Ala Lys Lys Phe Arg Leu Asn	
384 389 394 399	
aga gaa ggc aaa caa aaa gca gat aag aac cgt gcc cga gta gaa gag	1487
Arg Glu Gly Lys Gln Lys Ala Asp Lys Asn Arg Ala Arg Val Glu Glu	
400 405 410 415	
aac ttc ttg aaa ctg aca cat gtg caa aga cag gaa gca gca cag tct	1535
Asn Phe Leu Lys Leu Thr His Val Gln Arg Gln Glu Ala Ala Gln Ser	
416 421 426 431	
cgg cgg gag gag aaa aaa aga gca gag aag gag cga atc atg aat gag	1583
Arg Arg Glu Glu Lys Lys Arg Ala Glu Lys Glu Arg Ile Met Asn Glu	
432 437 442 447	
gaa gat cct gag aaa cag cgc agg ctg gag gag gct gca ttg agg cgt	1631
Glu Asp Pro Glu Lys Gln Arg Arg Leu Glu Glu Ala Ala Leu Arg Arg	
448 453 458 463	
gag caa aag aag ttg gaa aag aag caa atg aaa atg aaa caa atc aaa	1679



Glu Gln Lys Lys Leu Glu Lys Lys Gln Met Lys Met Lys Gln Ile Lys  
 464 469 474 479

gtg aaa gcc atg taa agccatccca gagatttgag ttctgatgcc acctgtaagc 1734  
 Val Lys Ala Met \*  
 480

tctgaattca caggaaacat gaaaaacgcc agtccatttc tcaaccttaa atttcagaca 1794  
 gtcttgggca actgagaaat ccttatttca tcatctactc tgtttgggggt ttgggggtttt 1854  
 acagagattg aagatacctg gaaagggctc tgtttcaaga attttttttt ccagataatc 1914  
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 catgaaattt ataggtagat aaccagattg ttgctttttg tttaaaccac gcagttgaaa 2094  
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 Met Ser His Arg Thr Ser Ser Thr Phe Arg  
 1 5  
 gcg gag aga agt ttc cat tcc tct tcc tct tcc tcc tcc tcc gcc tcc 158  
 Ala Glu Arg Ser Phe His Ser Ser Ser Ser Ser Ser Ser Ala Ser  
 11 16 21 26  
 cgt gct ctc ccg ggc cag gac ccg ccc atg gag aag gcc ctg agc atg 206  
 Arg Ala Leu Pro Gly Gln Asp Pro Pro Met Glu Lys Ala Leu Ser Met  
 27 32 37 42  
 ttt tcc gat gac ttt ggc agc ttc atg cgg ccc cac tcg gag ccc ctg 254  
 Phe Ser Asp Asp Phe Gly Ser Phe Met Arg Pro His Ser Glu Pro Leu  
 43 48 53 58  
 gcc ttc cca gcc cgc ccc ggt ggg gca ggc aac atc aag acc cta gga 302  
 Ala Phe Pro Ala Arg Pro Gly Gly Ala Gly Asn Ile Lys Thr Leu Gly  
 59 64 69 74

gac gcc tat gag ttt gcg gtg gac gtg aga gac ttc tca cct gaa gac	350
Asp Ala Tyr Glu Phe Ala Val Asp Val Arg Asp Phe Ser Pro Glu Asp	
75 80 85 90	
atc att gtc acc acc tcc aac aac cac atc gag gtg cgg gct gag aag	398
Ile Ile Val Thr Thr Ser Asn Asn His Ile Glu Val Arg Ala Glu Lys	
91 96 101 106	
ctg gcg gct gac ggc act gtc atg aac acc ttc gct cac aag tgc cag	446
Leu Ala Ala Asp Gly Thr Val Met Asn Thr Phe Ala His Lys Cys Gln	
107 112 117 122	
ctg ccg gag gac gtg gac ccg acg tcg gtg acc tcg gct ctg cgg gag	494
Leu Pro Glu Asp Val Asp Pro Thr Ser Val Thr Ser Ala Leu Arg Glu	
123 128 133 138	
gac ggc agc ctc act atc cgg gca cgg cgt cac ccg cat aca gaa cac	542
Asp Gly Ser Leu Thr Ile Arg Ala Arg Arg His Pro His Thr Glu His	
139 144 149 154	
gtc cag cag acc ttc cgg acg gag atc aaa atc tga gtgc ctctctggtc	592
Val Gln Gln Thr Phe Arg Thr Glu Ile Lys Ile *	
155 160 165	
agtgtgcctt aggggtggcct ctcaactccca ccactctggg ccccttgggg gaggactggg	652
gaggggggccg tgggagagcc ctgacgctgg aacctgtata cacaataaag gacagtctca	712
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cgc ggc ttc cgg atc ctt ggt ctg cgc tcc agc gtg ggc ccg gct gtg	98
Arg Gly Phe Arg Ile Leu Gly Leu Arg Ser Ser Val Gly Pro Ala Val	
10 15 20 25	
cag gca cga ggt gtc cat cag agc gtg gcc acc gat ggc cca agc agc	146
Gln Ala Arg Gly Val His Gln Ser Val Ala Thr Asp Gly Pro Ser Ser	
26 31 36 41	
acc cag cct gcc ctg cca aag gcc aga gcc gtg gct ccc aaa ccc agc	194

Thr Gln Pro Ala Leu Pro Lys Ala Arg Ala Val Ala Pro Lys Pro Ser	
42 47 52 57	
agc cgg ggc gag tat gtg gtg gcc aag ctg gat gac ctc gtc aac tgg	242
Ser Arg Gly Glu Tyr Val Val Ala Lys Leu Asp Asp Leu Val Asn Trp	
58 63 68 73	
gcc cgc cgg agt tct ctg tgg ccc atg acc ttc ggc ctg gcc tgc tgc	290
Ala Arg Arg Ser Ser Leu Trp Pro Met Thr Phe Gly Leu Ala Cys Cys	
74 79 84 89	
gcc gtg gag atg atg cac atg gca gca ccc cgc tac gac atg gac cgc	338
Ala Val Glu Met Met His Met Ala Ala Pro Arg Tyr Asp Met Asp Arg	
90 95 100 105	
ttt ggc gtg gtc ttc cgc gcc agc ccg cgc cag tcc gac gtc atg atc	386
Phe Gly Val Val Phe Arg Ala Ser Pro Arg Gln Ser Asp Val Met Ile	
106 111 116 121	
gtg gcc ggc aca ctc acc aac aag atg gcc cca gcg ctt cgc aag gtc	434
Val Ala Gly Thr Leu Thr Asn Lys Met Ala Pro Ala Leu Arg Lys Val	
122 127 132 137	
tac gac cag atg ccg gag ccg cgc tac gtg gtc tcc atg ggg agc tgc	482
Tyr Asp Gln Met Pro Glu Pro Arg Tyr Val Val Ser Met Gly Ser Cys	
138 143 148 153	
gcc aac gga gga ggc tac tac cac tat tcc tac tcg gtg gtg agg ggc	530
Ala Asn Gly Gly Gly Tyr Tyr His Tyr Ser Tyr Ser Val Val Arg Gly	
154 159 164 169	
tgc gac cgc atc gtg ccc gtg gac atc tac atc cca ggc tgc cca cct	578
Cys Asp Arg Ile Val Pro Val Asp Ile Tyr Ile Pro Gly Cys Pro Pro	
170 175 180 185	
acg gcc gag gcc ctg ctc tac ggc atc ctg cag ctg cag agg aag atc	626
Thr Ala Glu Ala Leu Leu Tyr Gly Ile Leu Gln Leu Gln Arg Lys Ile	
186 191 196 201	
aag cgg gag cgg agg ctg cag atc tgg tac cgc agg tag cgccgccgcc	675
Lys Arg Glu Arg Arg Leu Gln Ile Trp Tyr Arg Arg *	
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cgc aaa acc tgc ctc ttc tcc ggc cgg ggc ggc ggg agg ggg ctg tgg 100  
Arg Lys Thr Cys Leu Phe Ser Gly Arg Gly Gly Gly Arg Gly Leu Trp  
12 17 22 27

act ggc cgc ccg cag tca gat atg aac aat ata aag cca ttg gaa ggg 148  
Thr Gly Arg Pro Gln Ser Asp Met Asn Asn Ile Lys Pro Leu Glu Gly  
28 33 38 43

gta aaa att ctg gat cta aca aga gtc ctg gcg gga cct ttt gct act 196  
Val Lys Ile Leu Asp Leu Thr Arg Val Leu Ala Gly Pro Phe Ala Thr  
44 49 54 59

atg aat tta gga gat ctt gga gca gaa gtt ata aaa gtg gag aga cca 244  
Met Asn Leu Gly Asp Leu Gly Ala Glu Val Ile Lys Val Glu Arg Pro  
60 65 70 75

gga gct ggt gat gat aca cga act tgg ggg cca cct ttt gtt ggg aca 292  
Gly Ala Gly Asp Asp Thr Arg Thr Trp Gly Pro Pro Phe Val Gly Thr  
76 81 86 91

gaa agt aca tat tat ctc agt gtt aac cga aat aaa aaa agt att gct 340  
Glu Ser Thr Tyr Tyr Leu Ser Val Asn Arg Asn Lys Lys Ser Ile Ala  
92 97 102 107

gtt aat atc aag gat cca aaa ggg gtg aaa atc atc aaa gag ctt gca 388  
Val Asn Ile Lys Asp Pro Lys Gly Val Lys Ile Ile Lys Glu Leu Ala  
108 113 118 123

gct gtt tgt gat gtg ttt gtg gaa aac tat gtc cct ggc aaa ctg tct 436  
Ala Val Cys Asp Val Phe Val Glu Asn Tyr Val Pro Gly Lys Leu Ser  
124 129 134 139

gca atg ggc ctg gga tat gaa gat ata gac gag att gct cct cac atc 484  
Ala Met Gly Leu Gly Tyr Glu Asp Ile Asp Glu Ile Ala Pro His Ile  
140 145 150 155

atc tat tgt tcc atc aca ggg tat ggt cag aca ggt cca att tct cag 532  
Ile Tyr Cys Ser Ile Thr Gly Tyr Gly Gln Thr Gly Pro Ile Ser Gln  
156 161 166 171

cga gct ggt tat gat gct gtt gcc tcg gct gtt tct ggt ctg atg cac 580  
Arg Ala Gly Tyr Asp Ala Val Ala Ser Ala Val Ser Gly Leu Met His  
172 177 182 187

atc aca ggg cct gag gtg gcg tgt ttg tct cac ata gct gca aat tat 628  
Ile Thr Gly Pro Glu Val Ala Cys Leu Ser His Ile Ala Ala Asn Tyr  
188 193 198 203

ctt att ggt caa aag gaa gca aaa cgt tgg ggt aca gct cat ggc agt 676  
Leu Ile Gly Gln Lys Glu Ala Lys Arg Trp Gly Thr Ala His Gly Ser

204	209	214	219	
atc gtt cct tac cag gct ttt aaa acc aag gat ggc tat att gta gtt				724
Ile Val Pro Tyr Gln Ala Phe Lys Thr Lys Asp Gly Tyr Ile Val Val				
220	225	230	235	
gga gca gga aat aac cag cag ttt gcc acc gtc tgc aag atc ttg gat				772
Gly Ala Gly Asn Asn Gln Gln Phe Ala Thr Val Cys Lys Ile Leu Asp				
236	241	246	251	
ttg cct gag ttg att gat aat tcc aag tat aaa act aac cac ctt cgg				820
Leu Pro Glu Leu Ile Asp Asn Ser Lys Tyr Lys Thr Asn His Leu Arg				
252	257	262	267	
gta cac aat aga aaa gag ctt att aaa ata tta tct gaa cgg ttt gaa				868
Val His Asn Arg Lys Glu Leu Ile Lys Ile Leu Ser Glu Arg Phe Glu				
268	273	278	283	
gaa gaa ctg acc agc aag tgg tta tat ctt ttt gaa ggc agt gga gtc				916
Glu Glu Leu Thr Ser Lys Trp Leu Tyr Leu Phe Glu Gly Ser Gly Val				
284	289	294	299	
ccg tat ggc cca atc aac aac atg aag aat gta ttt gca gaa cct cag				964
Pro Tyr Gly Pro Ile Asn Asn Met Lys Asn Val Phe Ala Glu Pro Gln				
300	305	310	315	
gta tta cac aat ggc ctc gtt atg gag atg gag cat cca act gtg ggg				1012
Val Leu His Asn Gly Leu Val Met Glu Met Glu His Pro Thr Val Gly				
316	321	326	331	
aag att tcc gtc cca ggc cca gct gtg aga tac agt aag ttc aag atg				1060
Lys Ile Ser Val Pro Gly Pro Ala Val Arg Tyr Ser Lys Phe Lys Met				
332	337	342	347	
tca gag gcc agg ccg ccc ccc ctg ctc ggg cag cac aca acg cac atc				1108
Ser Glu Ala Arg Pro Pro Pro Leu Leu Gly Gln His Thr Thr His Ile				
348	353	358	363	
ctg aag gag gtc ctg aga tac gat gac agg gcc atc ggg gag ctg ctc				1156
Leu Lys Glu Val Leu Arg Tyr Asp Asp Arg Ala Ile Gly Glu Leu Leu				
364	369	374	379	
agc gct gga gtg gtg gac caa cat gaa act cac tga caaa ggaaaagggc				1206
Ser Ala Gly Val Val Asp Gln His Glu Thr His *				
380	385	390		
tcttctcat aacctcgatc cgaatacact ggcaaaggca acactttgct tggacccttc				1266
ttcccagttc tgataccact aagaagaaga tttagagtaa ctccagattt cttacatggc				1326
atctccagaa tggctctggc attaatgaat ctagtgcctt ttaaattgtat cccacgtttt				1386
gttccctacc atcttttttt tcagatgatg atttcattat ggattttgtgg gattttttaa				1446
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Met Val Ser Asp Glu Asp Glu Leu Asn Leu Leu Val Ile Val Val
      1              5              10

gat gcc aac cca att tgg tgg gga aag caa gca tta aag gaa tct cag      157
Asp Ala Asn Pro Ile Trp Trp Gly Lys Gln Ala Leu Lys Glu Ser Gln
      16              21              26              31

ttc act tta tcc aaa tgc ata gat gcc gtg atg gtg ctg gga aat tgc      205
Phe Thr Leu Ser Lys Cys Ile Asp Ala Val Met Val Leu Gly Asn Ser
      32              37              42              47

cat tta ttc atg aat cgt tcc aac aaa ctt gct gtg ata gca agt cac      253
His Leu Phe Met Asn Arg Ser Asn Lys Leu Ala Val Ile Ala Ser His
      48              53              58              63

att caa gaa agc cga ttc tta tat cct gga aag aat ggc aga ctt gga      301
Ile Gln Glu Ser Arg Phe Leu Tyr Pro Gly Lys Asn Gly Arg Leu Gly
      64              69              74              79

gac ttc ttc gga gac cct ggc aac cct cct gaa ttt aat ccc tct ggg      349
Asp Phe Phe Gly Asp Pro Gly Asn Pro Pro Glu Phe Asn Pro Ser Gly
      80              85              90              95

agt aaa gat gga aaa tac gaa ctt tta acc tca gca aat gaa gtt att      397
Ser Lys Asp Gly Lys Tyr Glu Leu Leu Thr Ser Ala Asn Glu Val Ile
      96              101              106              111

gtt gaa gag att aaa gat cta atg acc aaa agt gac ata aag ggt caa      445
Val Glu Glu Ile Lys Asp Leu Met Thr Lys Ser Asp Ile Lys Gly Gln
      112              117              122              127

cat aca gaa act ttg ctg gca gga tcc ctg gcc aaa gcc ctt tgc tac      493
His Thr Glu Thr Leu Leu Ala Gly Ser Leu Ala Lys Ala Leu Cys Tyr
      128              133              138              143

att cat aga atg aac aag gaa gtt aaa gac aat cag gaa atg aaa tca      541
Ile His Arg Met Asn Lys Glu Val Lys Asp Asn Gln Glu Met Lys Ser
      144              149              154              159

agg ata ttg gtg att aag gct gca gaa gac agt gcg ttg cag tat atg      589
Arg Ile Leu Val Ile Lys Ala Ala Glu Asp Ser Ala Leu Gln Tyr Met
      160              165              170              175

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aac ttc atg aat gtc atc ttt gca gca cag aaa cag aat att ttg att	637
Asn Phe Met Asn Val Ile Phe Ala Ala Gln Lys Gln Asn Ile Leu Ile	
176 181 186 191	
gat gcc tgt gtt tta gac tcc gac tca ggg ctc ctc caa cag gct tgt	685
Asp Ala Cys Val Leu Asp Ser Asp Ser Gly Leu Leu Gln Gln Ala Cys	
192 197 202 207	
gac atc acg gga gga ctg tac ctg aag gtg cct cag atg cct tct ctt	733
Asp Ile Thr Gly Gly Leu Tyr Leu Lys Val Pro Gln Met Pro Ser Leu	
208 213 218 223	
ctg cag tat ttg ctg tgg gtg ttt ctt ccc gat caa gat cag aga tct	781
Leu Gln Tyr Leu Leu Trp Val Phe Leu Pro Asp Gln Asp Gln Arg Ser	
224 229 234 239	
cag tta atc ctc cca ccc cca gtt cat gtt gac tac agg gct gct tgc	829
Gln Leu Ile Leu Pro Pro Pro Val His Val Asp Tyr Arg Ala Ala Cys	
240 245 250 255	
ttc tgt cat cga aat ctc att gaa att ggt tat gtc tgt tct gtg tgt	877
Phe Cys His Arg Asn Leu Ile Glu Ile Gly Tyr Val Cys Ser Val Cys	
256 261 266 271	
ttg tca ata ttc tgc aat ttc agc ccc att tgt act acg tgc gag aca	925
Leu Ser Ile Phe Cys Asn Phe Ser Pro Ile Cys Thr Thr Cys Glu Thr	
272 277 282 287	
gcc ttt aaa att tct ctg cct cca gtg ctg aaa gcc aag aaa aag aaa	973
Ala Phe Lys Ile Ser Leu Pro Pro Val Leu Lys Ala Lys Lys Lys Lys	
288 293 298 303	
ctg aaa gtg tct gcc tga ggataa aatattttcc ccattctttta gagctgttaa	1027
Leu Lys Val Ser Ala *	
304 309	
tagaaattat atagcagatt ctttgttggg aagactgaaa aaaataaaga taggtatagg	1087
ataattttta atatggtgac cttacagaaa atatttccca aacatccttt tcatcctgtg	1147
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	Met Phe Ser Gln Gln Gln Gln Gln Gln Leu Gln Gln Gln Gln					
	1 5 10					
cag cag ctc cag cag tta cag cag cag cag ctc cag cag cag caa ttg	155					
Gln Gln Leu Gln Gln Leu Gln Gln Gln Gln Leu Gln Gln Gln Gln Leu						
15 20 25 30						
cag cag cag cag tta ctg cag ctc cag cag ctg ctc cag cag tcc cca	203					
Gln Gln Gln Gln Leu Leu Gln Leu Gln Gln Leu Leu Gln Gln Ser Pro						
31 36 41 46						
cca cag gcc ccg ttg ccc atg gct gtc agc cgg ggg ctc ccc ccg cag	251					
Pro Gln Ala Pro Leu Pro Met Ala Val Ser Arg Gly Leu Pro Pro Gln						
47 52 57 62						
cag cca cag cag ccg ctt ctg aat ctc cag ggc acc aac tca gcc tcc	299					
Gln Pro Gln Gln Pro Leu Leu Asn Leu Gln Gly Thr Asn Ser Ala Ser						
63 68 73 78						
ctc ctc aac ggc tcc atg ctg cag aga gct ttg ctt tta cag cag ttg	347					
Leu Leu Asn Gly Ser Met Leu Gln Arg Ala Leu Leu Leu Gln Gln Leu						
79 84 89 94						
caa gga ctg gac cag ttt gca atg cca cca gcc acg tat gac act gcc	395					
Gln Gly Leu Asp Gln Phe Ala Met Pro Pro Ala Thr Tyr Asp Thr Ala						
95 100 105 110						
ggc ctc acc atg ccc aca gca aca ctg ggt aac ctc cga ggc tat ggc	443					
Gly Leu Thr Met Pro Thr Ala Thr Leu Gly Asn Leu Arg Gly Tyr Gly						
111 116 121 126						
atg gca tcc cca ggc ctc gca gcc ccc agc ctc aca ccc cca caa ctg	491					
Met Ala Ser Pro Gly Leu Ala Ala Pro Ser Leu Thr Pro Pro Gln Leu						
127 132 137 142						
gcc act cca aat ttg caa cag ttc ttt ccc cag gcc act cgc cag tcc	539					
Ala Thr Pro Asn Leu Gln Gln Phe Phe Pro Gln Ala Thr Arg Gln Ser						
143 148 153 158						
ttg ctg gga cct cct cct gtt ggg gtc ccc atg aac cct tcc cag ttc	587					
Leu Leu Gly Pro Pro Pro Val Gly Val Pro Met Asn Pro Ser Gln Phe						
159 164 169 174						
aac ctt tca gga cgg aac ccc cag aaa cag gcc cgg acc tcc tcc tct	635					
Asn Leu Ser Gly Arg Asn Pro Gln Lys Gln Ala Arg Thr Ser Ser Ser						
175 180 185 190						
acc acc ccc aat cga aag gat tct tct tct cag aca atg cct gtg gaa	683					
Thr Thr Pro Asn Arg Lys Asp Ser Ser Ser Gln Thr Met Pro Val Glu						
191 196 201 206						
gac aag tca gac ccc cca gag ggg tct gag gaa gcc gca gag ccc cgg	731					
Asp Lys Ser Asp Pro Pro Glu Gly Ser Glu Glu Ala Ala Glu Pro Arg						



207	212	217	222	
atg gac aca cca gaa gac	caa gat tta ccg ccc tgc cca gag gac atc			779
Met Asp Thr Pro Glu Asp	Gln Asp Leu Pro Pro Cys Pro Glu Asp Ile			
223	228	233	238	
gcc aag gaa aaa cgc act	cca gca cct gag cct gag cct tgt gag gcg			827
Ala Lys Glu Lys Arg Thr	Pro Ala Pro Glu Pro Glu Pro Cys Glu Ala			
239	244	249	254	
tcc gag ctg cca gca aag	aga ttg agg agc tca gaa gag ccc aca gag			875
Ser Glu Leu Pro Ala Lys	Arg Leu Arg Ser Ser Glu Glu Pro Thr Glu			
255	260	265	270	
aag gaa cct cca ggg cag	tta cag gtg aag gcc cag ccg cag gcc cgg			923
Lys Glu Pro Pro Gly Gln	Leu Gln Val Lys Ala Gln Pro Gln Ala Arg			
271	276	281	286	
atg aca gta ccg aaa cag	aca cag aca cca gac ctg ctg cct gag gcc			971
Met Thr Val Pro Lys Gln	Thr Gln Thr Pro Asp Leu Leu Pro Glu Ala			
287	292	297	302	
ctg gaa gcc caa gtg ctg	cca cga ttc cag cca cgg gtc ctg cag gtc			1019
Leu Glu Ala Gln Val Leu	Pro Arg Phe Gln Pro Arg Val Leu Gln Val			
303	308	313	318	
cag gcc cag gtg cag tca	cag act cag ccg cgg ata cca tcc aca gac			1067
Gln Ala Gln Val Gln Ser	Gln Thr Gln Pro Arg Ile Pro Ser Thr Asp			
319	324	329	334	
acc cag gtg cag cca aag	ctg cag aag cag gcg caa aca cag acc tct			1115
Thr Gln Val Gln Pro Lys	Leu Gln Lys Gln Ala Gln Thr Gln Thr Ser			
335	340	345	350	
cca gag cac tta gtg ctg	caa cag aag cag gtg cag cca cag ctg cag			1163
Pro Glu His Leu Val Leu	Gln Gln Lys Gln Val Gln Pro Gln Leu Gln			
351	356	361	366	
cag gag gca gag cca cag	aag cag gtg cag cca cag gta cag cca cag			1211
Gln Glu Ala Glu Pro Gln	Lys Gln Val Gln Pro Gln Val Gln Pro Gln			
367	372	377	382	
gca cat tca cag ggc cca	agg cag gtg cag ctg cag cag gag gca gag			1259
Ala His Ser Gln Gly Pro	Arg Gln Val Gln Leu Gln Gln Glu Ala Glu			
383	388	393	398	
ccg ctg aag cag gtg cag	cca cag gtg cag ccc cag gca cat tca cag			1307
Pro Leu Lys Gln Val Gln	Pro Gln Val Gln Pro Gln Ala His Ser Gln			
399	404	409	414	
ccc cca agg cag gtg cag	ctg cag ctg cag aag cag gtc cag aca cag			1355
Pro Pro Arg Gln Val Gln	Leu Gln Leu Gln Lys Gln Val Gln Thr Gln			
415	420	425	430	
aca tat cca cag gtc cac	aca cag gca cag cca agc gtc cag cca cag			1403
Thr Tyr Pro Gln Val His	Thr Gln Ala Gln Pro Ser Val Gln Pro Gln			
431	436	441	446	

gag cat cct cca gcg cag gtg tca gta cag cca cca gag cag acc cat	1451
Glu His Pro Pro Ala Gln Val Ser Val Gln Pro Pro Glu Gln Thr His	
447 452 457 462	
gag cag cct cac acc cag ccg cag gtg tgg ttg ctg gct cca gag caa	1499
Glu Gln Pro His Thr Gln Pro Gln Val Ser Leu Leu Ala Pro Glu Gln	
463 468 473 478	
aca cca gtt gtg gtt cat gtc tgc ggg ctg gag atg cca cct gat gca	1547
Thr Pro Val Val Val His Val Cys Gly Leu Glu Met Pro Pro Asp Ala	
479 484 489 494	
gta gaa gct ggt gga ggc atg gaa aag acc ttg cca gag cct gtg ggc	1595
Val Glu Ala Gly Gly Gly Met Glu Lys Thr Leu Pro Glu Pro Val Gly	
495 500 505 510	
acc caa gtc agc atg gaa gag att cag aat gag tgg gcc tgt ggc cta	1643
Thr Gln Val Ser Met Glu Glu Ile Gln Asn Glu Ser Ala Cys Gly Leu	
511 516 521 526	
gat gtg gga gaa tgt gaa aac aga gcg aga gag atg cca ggg gta tgg	1691
Asp Val Gly Glu Cys Glu Asn Arg Ala Arg Glu Met Pro Gly Val Trp	
527 532 537 542	
ggc gcc ggg ggc tcc ctg aag gtc acc att ctg cag agc agt gac agc	1739
Gly Ala Gly Gly Ser Leu Lys Val Thr Ile Leu Gln Ser Ser Asp Ser	
543 548 553 558	
cgg gcc ttt agc act gta ccc ctg aca cct gtc ccc cgc ccc agt gac	1787
Arg Ala Phe Ser Thr Val Pro Leu Thr Pro Val Pro Arg Pro Ser Asp	
559 564 569 574	
tcc gtc tcc tcc acc cct gcg gct acc agc act ccc tct aag cag gcc	1835
Ser Val Ser Ser Thr Pro Ala Ala Thr Ser Thr Pro Ser Lys Gln Ala	
575 580 585 590	
ctc cag ttc ttc tgc tac atc tgc aag gcc agc tgc tcc agc cag cag	1883
Leu Gln Phe Phe Cys Tyr Ile Cys Lys Ala Ser Cys Ser Ser Gln Gln	
591 596 601 606	
gag ttc cag gac cac atg tgg gag cct cag cac cag cag cgg cta ggg	1931
Glu Phe Gln Asp His Met Ser Glu Pro Gln His Gln Gln Arg Leu Gly	
607 612 617 622	
gag atc cag cac atg agc caa gcc tgc ctc ctg tcc ctg ctg ccc gtg	1979
Glu Ile Gln His Met Ser Gln Ala Cys Leu Leu Ser Leu Leu Pro Val	
623 628 633 638	
ccc cgg gac gtc ctg gag aca gag gat gag gag cct cca cca agg cgc	2027
Pro Arg Asp Val Leu Glu Thr Glu Asp Glu Glu Pro Pro Pro Arg Arg	
639 644 649 654	
tgg tgc aac acc tgc cag ctc tac tac atg ggg gac ctg atc caa cac	2075
Trp Cys Asn Thr Cys Gln Leu Tyr Tyr Met Gly Asp Leu Ile Gln His	
655 660 665 670	

cgc agg aca cag gac cac aag att gcc aaa caa tcc ttg cga ccc ttc	2123
Arg Arg Thr Gln Asp His Lys Ile Ala Lys Gln Ser Leu Arg Pro Phe	
671 676 681 686	
tgc acc gtt tgc aac cgc tac ttc aaa acc cct cgc aag ttt gtg gag	2171
Cys Thr Val Cys Asn Arg Tyr Phe Lys Thr Pro Arg Lys Phe Val Glu	
687 692 697 702	
cac gtg aag tcc cag ggg cat aag gac aaa gcc aag gag ctg aag tcg	2219
His Val Lys Ser Gln Gly His Lys Asp Lys Ala Lys Glu Leu Lys Ser	
703 708 713 718	
ctt gag aaa gaa att gct ggc caa gat gag gac cac ttc att aca gtg	2267
Leu Glu Lys Glu Ile Ala Gly Gln Asp Glu Asp His Phe Ile Thr Val	
719 724 729 734	
gac gct gtg ggt tgc ttc gag ggt gat gaa gaa gag gaa gag gat gat	2315
Asp Ala Val Gly Cys Phe Glu Gly Asp Glu Glu Glu Glu Glu Asp Asp	
735 740 745 750	
gag gat gaa gaa gag atc gag gtt gag gag gaa ctc tgc aag cag gtg	2363
Glu Asp Glu Glu Glu Ile Glu Val Glu Glu Glu Leu Cys Lys Gln Val	
751 756 761 766	
agg tcc aga gat ata tcc aga gag gag tgg aag ggc tcg gag acc tac	2411
Arg Ser Arg Asp Ile Ser Arg Glu Glu Trp Lys Gly Ser Glu Thr Tyr	
767 772 777 782	
agc ccc aat act gca tat ggt gtg gac ttc ctg gtg ccc gtg atg ggc	2459
Ser Pro Asn Thr Ala Tyr Gly Val Asp Phe Leu Val Pro Val Met Gly	
783 788 793 798	
tat atc tgc cgc atc tgc cac aag ttc tat cac agc aac tca ggg gca	2507
Tyr Ile Cys Arg Ile Cys His Lys Phe Tyr His Ser Asn Ser Gly Ala	
799 804 809 814	
cag ctc tcc cac tgc aag tcc ctg ggc cac ttt gag aac ctg cag aaa	2555
Gln Leu Ser His Cys Lys Ser Leu Gly His Phe Glu Asn Leu Gln Lys	
815 820 825 830	
tac aag gcg gcc aag aac ccc agc ccc acc acc cga cct gtg agc cgc	2603
Tyr Lys Ala Ala Lys Asn Pro Ser Pro Thr Thr Arg Pro Val Ser Arg	
831 836 841 846	
cgg tgc gca atc aac gcc cgg aac gct ttg aca gcc ctg ttc acc tcc	2651
Arg Cys Ala Ile Asn Ala Arg Asn Ala Leu Thr Ala Leu Phe Thr Ser	
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agc ggc cgc cca ccc tcc cag ccc aac acc cag gac aaa aca ccc agc	2699
Ser Gly Arg Pro Pro Ser Gln Pro Asn Thr Gln Asp Lys Thr Pro Ser	
863 868 873 878	
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Lys Val Thr Ala Arg Pro Ser Gln Pro Pro Leu Pro Arg Arg Ser Thr	
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cgc ctc aaa acc tga tagagggacc tcctgtccc tggcctgcct ggggccagat	2802

Arg Leu Lys Thr \*

895

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tggcggcccc aagcggctgg gacgagatgt ggaa atg gaa gaa atg att gag 172  
Met Glu Glu Met Ile Glu  
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cag ctg caa gag aaa gtt cat gag ctt gaa aaa caa aat gaa acc ctc 220  
Gln Leu Gln Glu Lys Val His Glu Leu Glu Lys Gln Asn Glu Thr Leu  
7 12 17 22

aaa aac aga ctg att tca gcc aaa cag caa ctt caa acc cag ggt tac 268  
Lys Asn Arg Leu Ile Ser Ala Lys Gln Gln Leu Gln Thr Gln Gly Tyr  
23 28 33 38

agg caa act cca tac aat aat gta caa tct cgt att aac act ggg cgt 316  
Arg Gln Thr Pro Tyr Asn Asn Val Gln Ser Arg Ile Asn Thr Gly Arg  
39 44 49 54

aga aaa gca aat gaa aat gct ggt tta cag gaa tgc ccc agg aaa ggt 364  
Arg Lys Ala Asn Glu Asn Ala Gly Leu Gln Glu Cys Pro Arg Lys Gly  
55 60 65 70

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Ile Lys Phe Gln Asp Ala Asp Val Ala Glu Thr Pro His Pro Met Phe  
71 76 81 86

aca aaa tat ggc aac agt tta ctt gaa gaa gcc aga gga gaa ata aga 460  
Thr Lys Tyr Gly Asn Ser Leu Leu Glu Glu Ala Arg Gly Glu Ile Arg  
87 92 97 102

aat tta gaa aac gtt att cag tca caa aga ggc cag ata gag gag tta 508  
Asn Leu Glu Asn Val Ile Gln Ser Gln Arg Gly Gln Ile Glu Glu Leu  
103 108 113 118

gag cac ttg gct gag atc ctg aaa act cag ttg agg aga aaa gaa aat 556

Glu His Leu Ala Glu Ile Leu Lys Thr Gln Leu Arg Arg Lys Glu Asn	
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Gln Arg Ser Asn Ile Arg Asp Asn Val Glu Met Ile Lys Leu His Lys	
151 156 161 166	
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Gln Leu Val Glu Lys Ser Asn Ala Leu Ser Ala Met Glu Gly Lys Phe	
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Ile Gln Leu Gln Glu Lys Gln Arg Thr Leu Lys Ile Ser His Asp Ala	
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Leu Met Ala Asn Gly Asp Glu Leu Asn Met Gln Leu Lys Glu Gln Arg	
199 204 209 214	
tta aaa tgc tgc agt ctt gag aaa caa tta cat tct atg aag ttt tct	844
Leu Lys Cys Cys Ser Leu Glu Lys Gln Leu His Ser Met Lys Phe Ser	
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231 236 241 246	
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247 252 257 262	
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Phe Ser Ala Ala His Glu Glu Gln Trp Lys Leu Lys Glu Gln Gln Leu	
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Lys Val Gln Ile Ala Gln Leu Glu Thr Ala Leu Lys Ser Asp Leu Thr	
279 284 289 294	
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Asp Lys Thr Glu Ile Leu Asp Arg Leu Lys Thr Glu Arg Asp Gln Asn	
295 300 305 310	
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327 332 337 342	
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Gln Glu Asn Asp Ile Asn Ala Asp Glu Leu Ser Glu Ala Leu Leu Leu	

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Ile Lys Ala Gln Lys Glu Gln Lys Asn Gly Asp Leu Ser Phe Leu Val				
359	364	369	374	
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Lys Val Asp Ser Glu Ile Asn Lys Asp Leu Glu Arg Ser Met Arg Glu				
375	380	385	390	
ctg caa gca act cat gca gaa acg gtg caa gag ctg gaa aag aca aga				1372
Leu Gln Ala Thr His Ala Glu Thr Val Gln Glu Leu Glu Lys Thr Arg				
391	396	401	406	
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Asn Met Leu Ile Met Gln His Lys Ile Asn Lys Asp Tyr Gln Met Glu				
407	412	417	422	
gtt gag gca gtg acc cgt aag atg gaa aat ttg cag caa gat tat gaa				1468
Val Glu Ala Val Thr Arg Lys Met Glu Asn Leu Gln Gln Asp Tyr Glu				
423	428	433	438	
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Leu Lys Val Glu Gln Tyr Val His Leu Leu Asp Ile Arg Ala Ala Arg				
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atc cat aaa cta gaa gcc caa tta aag gat att gcc tat ggc acc aag				1564
Ile His Lys Leu Glu Ala Gln Leu Lys Asp Ile Ala Tyr Gly Thr Lys				
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cag tac aaa ttt aaa cca gaa atc atg cca gat gac tct gtt gat gaa				1612
Gln Tyr Lys Phe Lys Pro Glu Ile Met Pro Asp Asp Ser Val Asp Glu				
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Phe Asp Glu Thr Ile His Leu Glu Arg Gly Glu Asn Leu Phe Glu Ile				
487	492	497	502	
cat atc aac aaa gta acc ttt tct tct gaa gtt tta cag gca tct gga				1708
His Ile Asn Lys Val Thr Phe Ser Ser Glu Val Leu Gln Ala Ser Gly				
503	508	513	518	
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Asp Lys Glu Pro Val Thr Phe Cys Thr Tyr Ala Phe Tyr Asp Phe Glu				
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Leu Gln Thr Thr Pro Val Val Arg Gly Leu His Pro Glu Tyr Asn Phe				
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Thr Ser Gln Tyr Leu Val His Val Asn Asp Leu Phe Leu Gln Tyr Ile				
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Gln Lys Asn Thr Ile Thr Leu Glu Val His Gln Ala Tyr Ser Thr Glu				
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Tyr Glu Thr Ile Ala Ala Cys Gln Leu Lys Phe His Glu Ile Leu Glu	
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Lys Ser Gly Arg Ile Phe Cys Thr Ala Ser Leu Ile Gly Thr Lys Gly	
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Asp Ile Pro Asn Phe Gly Thr Val Glu Tyr Trp Phe Arg Leu Arg Val	
615 620 625 630	
ccc atg gat caa gca att cga ctt tat cga gaa agg gca aag gct ttg	2092
Pro Met Asp Gln Ala Ile Arg Leu Tyr Arg Glu Arg Ala Lys Ala Leu	
631 636 641 646	
ggg tat ata aca tca aat ttt aag ggg cca gag cat atg cag tcg tta	2140
Gly Tyr Ile Thr Ser Asn Phe Lys Gly Pro Glu His Met Gln Ser Leu	
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Lys Phe Phe Asp Phe Ala Asp His Asp Thr Ala Ile Ile Pro Ser Ser	
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Glu Leu Thr Asp His Gln Lys His Pro Ala Gly Thr Ile His Val Ile	
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903 908 913 918	
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Ser Glu Asp Glu Thr Glu Ile Thr Glu Asp Leu Glu Pro Glu Val Glu	
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Gly Val Pro Arg Leu Arg Arg Val Leu Arg Ala Leu Ala Trp Leu Tyr	
180 185 190 195	
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Pro Glu Ile Gly Tyr Cys Gln Gly Thr Gly Met Val Ala Ala Cys Leu	
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Pro Arg Leu Asp Lys Leu Leu Gln Glu His Asp Ile Glu Leu Ser Leu	
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324 329 334 339	
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Ile Pro Ser Gln Met Glu Asp Ala Glu Leu Leu Leu Gly Val Ala Met	
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Gly Thr Leu Thr Asn Leu Ser Gln Val Val Arg Arg Arg Thr Gln Arg	
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Lys Asn Cys Ser Val Val Ser Arg Gln Leu Pro Gly Leu Leu Pro Asn	
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acg gcc cta act cct cca acc ccc ttg gtg ggc ctg tgt tca ctg tgg	1617
Thr Ala Leu Thr Pro Pro Thr Pro Leu Val Gly Leu Cys Ser Leu Trp	
468 473 478 483	
cag gag ctg act cca gac tat agc atg gag agc cac cag cgg gac cac	1665
Gln Glu Leu Thr Pro Asp Tyr Ser Met Glu Ser His Gln Arg Asp His	
484 489 494 499	
gag aac tac gtg gcg tgc tca cgc agc cac cgg cgc cga gcc aag gcc	1713
Glu Asn Tyr Val Ala Cys Ser Arg Ser His Arg Arg Arg Ala Lys Ala	
500 505 510 515	
ctg ctg gac ttt gag cgg cac gac gac gac gag ctg ggc ttc cgc aag	1761

Leu	Leu	Asp	Phe	Glu	Arg	His	Asp	Asp	Asp	Glu	Leu	Gly	Phe	Arg	Lys	
516					521					526					531	
aac	gac	atc	atc	aca	atc	gtg	tct	cag	aag	gac	gag	cac	tgc	tgg	gtg	1809
Asn	Asp	Ile	Ile	Thr	Ile	Val	Ser	Gln	Lys	Asp	Glu	His	Cys	Trp	Val	
532					537					542					547	
ggg	gag	ctc	aac	ggc	ctg	cga	ggc	tgg	ttt	cca	gcc	aag	ttc	gtg	gaa	1857
Gly	Glu	Leu	Asn	Gly	Leu	Arg	Gly	Trp	Phe	Pro	Ala	Lys	Phe	Val	Glu	
548					553					558					563	
gtc	ctg	gat	gag	cgc	agc	aaa	gag	tac	tcc	atc	gcg	ggg	gat	gac	tgc	1905
Val	Leu	Asp	Glu	Arg	Ser	Lys	Glu	Tyr	Ser	Ile	Ala	Gly	Asp	Asp	Ser	
564					569					574					579	
gtg	acg	gag	ggg	gtc	aca	gac	ctc	gtg	cga	ggg	acc	ctc	tgc	ccg	gcc	1953
Val	Thr	Glu	Gly	Val	Thr	Asp	Leu	Val	Arg	Gly	Thr	Leu	Cys	Pro	Ala	
580					585					590					595	
ctt	aag	gcc	ctg	ttc	gaa	cat	gga	ctg	aag	aag	cca	tcc	ctg	ott	ggg	2001
Leu	Lys	Ala	Leu	Phe	Glu	His	Gly	Leu	Lys	Lys	Pro	Ser	Leu	Leu	Gly	
596					601					606					611	
ggc	gcc	tgc	cac	ccc	tgg	ctg	ttt	atc	gag	gag	gct	gca	ggc	cgg	gag	2049
Gly	Ala	Cys	His	Pro	Trp	Leu	Phe	Ile	Glu	Glu	Ala	Ala	Gly	Arg	Glu	
612					617					622					627	
gtc	gag	aga	gac	ttt	gcc	tcc	gtg	tat	tcc	cgt	ctg	gtg	ctc	tgt	aag	2097
Val	Glu	Arg	Asp	Phe	Ala	Ser	Val	Tyr	Ser	Arg	Leu	Val	Leu	Cys	Lys	
628					633					638					643	
acc	ttc	agg	ttg	gat	gaa	gat	ggc	aaa	gtc	ctg	acc	ccg	gag	gag	ctg	2145
Thr	Phe	Arg	Leu	Asp	Glu	Asp	Gly	Lys	Val	Leu	Thr	Pro	Glu	Glu	Leu	
644					649					654					659	
ctc	tac	cgg	gct	gtg	cag	tct	gtg	aac	gtg	acc	cac	gat	gca	gtg	cat	2193
Leu	Tyr	Arg	Ala	Val	Gln	Ser	Val	Asn	Val	Thr	His	Asp	Ala	Val	His	
660					665					670					675	
gca	caa	atg	gat	gtg	aag	ctc	cgc	tca	ctg	atc	tgc	gtg	ggg	ctc	aat	2241
Ala	Gln	Met	Asp	Val	Lys	Leu	Arg	Ser	Leu	Ile	Cys	Val	Gly	Leu	Asn	
676					681					686					691	
gag	cag	gtg	ctg	cac	ctg	tgg	ctg	gag	gtg	ctc	tgc	tcc	agc	ctg	ccc	2289
Glu	Gln	Val	Leu	His	Leu	Trp	Leu	Glu	Val	Leu	Cys	Ser	Ser	Leu	Pro	
692					697					702					707	
acc	gtg	gag	aag	tgg	tac	cag	ccc	tgg	tcc	ttc	ctg	cgc	agc	ccg	ggc	2337
Thr	Val	Glu	Lys	Trp	Tyr	Gln	Pro	Trp	Ser	Phe	Leu	Arg	Ser	Pro	Gly	
708					713					718					723	
tgg	gtc	cag	atc	aag	tgt	gag	ctc	cga	gtc	ctc	tgc	tgc	ttt	gcc	ttc	2385
Trp	Val	Gln	Ile	Lys	Cys	Glu	Leu	Arg	Val	Leu	Cys	Cys	Phe	Ala	Phe	
724					729					734					739	
agc	ctc	tcc	cag	gac	tgg	gag	ctc	cct	gcg	aag	aga	gag	gcg	cag	cag	2433
Ser	Leu	Ser	Gln	Asp	Trp	Glu	Leu	Pro	Ala	Lys	Arg	Glu	Ala	Gln	Gln	

740	745	750	755	
ccc ctg aag gag ggc gtc cgg gac atg ctg gtg aag cac cac ctc ttc				2481
Pro Leu Lys Glu Gly Val Arg Asp Met Leu Val Lys His His Leu Phe				
756	761	766	771	
agc tgg gat gtg gac ggg tga cc cccctcctccc cagcccaacc tcggggcctgc				2534
Ser Trp Asp Val Asp Gly *				
772	777			
gtctgaggtg gcccaggacc ccaagctgca gagcccaggg aagagcagct ccagagccct				2594
ggccgggggcc gcgggatatc aatatcaggc tgccccactc cacgttcccc agcacatccc				2654
aggtggtggg agcagagggg accctgcccc accaggggtcc ttagggatgc tctaggccaa				2714
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tcaggtccaa ggttctgccc ttccttgagt ggtttagaag gcaactgcgtg gccctcaga				2954
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agacttctaa gattggagct gcagaagact tgccagccca ccagcaca atg tca gga	177
	Met Ser Gly
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agc cat aca cct gcc tgt ggc cct ttc tca gcc ctg act ccg agc ata	225
Ser His Thr Pro Ala Cys Gly Pro Phe Ser Ala Leu Thr Pro Ser Ile	
4 9 14 19	

tgg ccc cag gag atc ttg gcc aag tac acg cag aag gaa gag tca gca	273
Trp Pro Gln Glu Ile Leu Ala Lys Tyr Thr Gln Lys Glu Glu Ser Ala	
20 25 30 35	
gag caa cca gag ttc tac tac gat gag ttt ggt ttc cgt gtg tac aag	321
Glu Gln Pro Glu Phe Tyr Tyr Asp Glu Phe Gly Phe Arg Val Tyr Lys	
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Glu Glu Gly Asp Glu Pro Gly Ser Ser Leu Leu Ala Asn Ser Pro Leu	
52 57 62 67	
atg gag gat gct cca cag agg ctg cgg tgg cag gcc cac ctg gag ttc	417
Met Glu Asp Ala Pro Gln Arg Leu Arg Trp Gln Ala His Leu Glu Phe	
68 73 78 83	
acc cat aac cac gat gtg ggg gat ctc acc tgg gac aag att gcc gtc	465
Thr His Asn His Asp Val Gly Asp Leu Thr Trp Asp Lys Ile Ala Val	
84 89 94 99	
tcc cta ccc cgc tct gag aag ctc cgc tcc ctg gtg ctg gcc ggc atc	513
Ser Leu Pro Arg Ser Glu Lys Leu Arg Ser Leu Val Leu Ala Gly Ile	
100 105 110 115	
cca cat ggc atg agg cca cag ctg tgg atg cgg ctc tct ggg gcc ctg	561
Pro His Gly Met Arg Pro Gln Leu Trp Met Arg Leu Ser Gly Ala Leu	
116 121 126 131	
cag aag aag agg aac tct gag ctg tcc tac cgc gag att gtg aag aac	609
Gln Lys Lys Arg Asn Ser Glu Leu Ser Tyr Arg Glu Ile Val Lys Asn	
132 137 142 147	
agc tcc aac gat gag acc atc gct gcc aag cag atc gag aag gac ctg	657
Ser Ser Asn Asp Glu Thr Ile Ala Ala Lys Gln Ile Glu Lys Asp Leu	
148 153 158 163	
ctc cgc acc atg ccc agc aac gcc tgc ttc gcc agc atg ggt agc atc	705
Leu Arg Thr Met Pro Ser Asn Ala Cys Phe Ala Ser Met Gly Ser Ile	
164 169 174 179	
ggg gtg ccc cgc ctg cgc agg gtg ctc cgg gcc ctg gcc tgg ctc tac	753
Gly Val Pro Arg Leu Arg Arg Val Leu Arg Ala Leu Ala Trp Leu Tyr	
180 185 190 195	
cca gag atc ggc tac tgc cag ggc acc ggc atg gtg gcc gcc tgc ctc	801
Pro Glu Ile Gly Tyr Cys Gln Gly Thr Gly Met Val Ala Ala Cys Leu	
196 201 206 211	
ctg ctg ttc ctg gag gag gag gac gcc ttc tgg atg atg tct gcc atc	849
Leu Leu Phe Leu Glu Glu Glu Asp Ala Phe Trp Met Met Ser Ala Ile	
212 217 222 227	
atc gag gac ctg ctc ccc gcc tcc tac ttc agc acc acc ctg ctg ggt	897
Ile Glu Asp Leu Leu Pro Ala Ser Tyr Phe Ser Thr Thr Leu Leu Gly	
228 233 238 243	

gtc cag act gac cag cgg gtc ctg cgc cac ctc att gtc cag tac ctg	945
Val Gln Thr Asp Gln Arg Val Leu Arg His Leu Ile Val Gln Tyr Leu	
244 249 254 259	
cct cgc ctg gac aag ctg ctc cag gag cat gac att gag ctg tcc ctg	993
Pro Arg Leu Asp Lys Leu Leu Gln Glu His Asp Ile Glu Leu Ser Leu	
260 265 270 275	
atc aca ctg cac tgg ttc ctc acg gcc ttc gcc agc gtg gtg gac atc	1041
Ile Thr Leu His Trp Phe Leu Thr Ala Phe Ala Ser Val Val Asp Ile	
276 281 286 291	
aag ctg ctc ctg cgc atc tgg gac ctg ttt ttc tac gag ggc tcc cgg	1089
Lys Leu Leu Leu Arg Ile Trp Asp Leu Phe Phe Tyr Glu Gly Ser Arg	
292 297 302 307	
gtg ctg ttc cag ctc acg ctg ggc atg ctg cac ctc aag gag gaa gag	1137
Val Leu Phe Gln Leu Thr Leu Gly Met Leu His Leu Lys Glu Glu Glu	
308 313 318 323	
ctg atc cag tca gag aac tcg gcc tcc atc ttc aac acg cta tcg gat	1185
Leu Ile Gln Ser Glu Asn Ser Ala Ser Ile Phe Asn Thr Leu Ser Asp	
324 329 334 339	
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Ile Pro Ser Gln Met Glu Asp Ala Glu Leu Leu Leu Gly Val Ala Met	
340 345 350 355	
cgg ctg gcc ggc tcc ctc acc gat gtg gcc gtg gag act cag cgc cgc	1281
Arg Leu Ala Gly Ser Leu Thr Asp Val Ala Val Glu Thr Gln Arg Arg	
356 361 366 371	
aag ctc ctg gcc tat ctc att gca gac cag ggc cag ctc ctg ggg gcc	1329
Lys Leu Leu Ala Tyr Leu Ile Ala Asp Gln Gly Gln Leu Leu Gly Ala	
372 377 382 387	
ggc acc ctc acc aac ctc tct cag gtt gtt cgc cgc agg acc cag cgg	1377
Gly Thr Leu Thr Asn Leu Ser Gln Val Val Arg Arg Arg Thr Gln Arg	
388 393 398 403	
agg aag tcc acc atc act gct ctg ctc ttc ggg gag gat gac ctg gag	1425
Arg Lys Ser Thr Ile Thr Ala Leu Leu Phe Gly Glu Asp Asp Leu Glu	
404 409 414 419	
gca ctc aag gcc aag aac atc aag cag acg gaa ctg gtg gct gac ctc	1473
Ala Leu Lys Ala Lys Asn Ile Lys Gln Thr Glu Leu Val Ala Asp Leu	
420 425 430 435	
cgg gaa gcc atc ctg cgc gtg gca cgc cac ttc cag tgc aca gac ccc	1521
Arg Glu Ala Ile Leu Arg Val Ala Arg His Phe Gln Cys Thr Asp Pro	
436 441 446 451	
aaa aac tgc agc gtg gag ctg act cca gac tat agc atg gag agc cac	1569
Lys Asn Cys Ser Val Glu Leu Thr Pro Asp Tyr Ser Met Glu Ser His	
452 457 462 467	
cag cgg gac cac gag aac tac gtg gcg tgc tca cgc agc cac cgg cgc	1617





692	697	702	707	
tgc ttt gcc ttc agc ctc tcc cag gac tgg gag ctc cct gcg aag aga				2337
Cys Phe Ala Phe Ser Leu Ser Gln Asp Trp Glu Leu Pro Ala Lys Arg				
708	713	718	723	
gag gcg cag cag ccc ctg aag gag ggc gtc cgg gac atg ctg gtg aag				2385
Glu Ala Gln Gln Pro Leu Lys Glu Gly Val Arg Asp Met Leu Val Lys				
724	729	734	739	
cac cac ctc ttc agc tgg gat gtg gac ggg tga cccctcc tcccagccc				2436
His His Leu Phe Ser Trp Asp Val Asp Gly *				
740	745	750		
aacctcgggc ctgcgtctga ggtggcccag gaccccaagc tgcagagccc aggggaagagc				2496
agctccagag ccttggccgg ggccgcggga tatcaatatac aggttgcccc actccacgtt				2556
ccccagcaca tcccaggtgg tgggagcaga ggggtaccctg ccccaccagg gtccttaggg				2616
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tctgtgctca ggaagagggg aggggatggg ggtggctagt aggtcctgg cctctttggt				2736
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tt atg ctg agg aat gag cga cag ttc aag gag gag aag ctt gca gag	167
Met Leu Arg Asn Glu Arg Gln Phe Lys Glu Glu Lys Leu Ala Glu	
1 5 10	
cag ctc aag caa gct gag gag ctc agg caa tat aaa gtc ctg gtt cac	215
Gln Leu Lys Gln Ala Glu Glu Leu Arg Gln Tyr Lys Val Leu Val His	
16 21 26 31	

gct cag gaa cga gag ctg acc cag tta agg gag aag tta cgg gaa ggg	263
Ala Gln Glu Arg Glu Leu Thr Gln Leu Arg Glu Lys Leu Arg Glu Gly	
32 37 42 47	
aga gat gcc tcc cgc tca ttg aat gag cat ctc cag gcc ctc ctc act	311
Arg Asp Ala Ser Arg Ser Leu Asn Glu His Leu Gln Ala Leu Leu Thr	
48 53 58 63	
ccg gat gag ccg gac aag tcc cag ggg cag gac ctc caa gaa cag ctg	359
Pro Asp Glu Pro Asp Lys Ser Gln Gly Gln Asp Leu Gln Glu Gln Leu	
64 69 74 79	
gct gag ggg tgt aga ctg gca cag cac ctt gtc caa aag ctc agc cca	407
Ala Glu Gly Cys Arg Leu Ala Gln His Leu Val Gln Lys Leu Ser Pro	
80 85 90 95	
gaa aat gat gaa gat gag gat gaa gat gtt caa gtt gag gag gat gag	455
Glu Asn Asp Glu Asp Glu Asp Glu Asp Val Gln Val Glu Glu Asp Glu	
96 101 106 111	
aaa gtg ctg gaa tca tct tcc ccc agg gag atg cag aag gct gaa gaa	503
Lys Val Leu Glu Ser Ser Ser Pro Arg Glu Met Gln Lys Ala Glu Glu	
112 117 122 127	
agc aaa gtc cct gag gac tca ctg gag gaa tgt gcc atc act tgt tca	551
Ser Lys Val Pro Glu Asp Ser Leu Glu Glu Cys Ala Ile Thr Cys Ser	
128 133 138 143	
aat agc cac ggc cct tgt gac tcc aac cag cct cac aag aac atc aaa	599
Asn Ser His Gly Pro Cys Asp Ser Asn Gln Pro His Lys Asn Ile Lys	
144 149 154 159	
atc aca ttt gag gaa gac gaa gtc aac tca act ctg gtt gta gac aga	647
Ile Thr Phe Glu Glu Asp Glu Val Asn Ser Thr Leu Val Val Asp Arg	
160 165 170 175	
gaa tcc tct cat gat gaa tgt cag gat gct cta aac att ctc cca gtc	695
Glu Ser Ser His Asp Glu Cys Gln Asp Ala Leu Asn Ile Leu Pro Val	
176 181 186 191	
cct ggc ccc acc tct tct gcc aca aac gtc agc atg gtg gta tca gcc	743
Pro Gly Pro Thr Ser Ser Ala Thr Asn Val Ser Met Val Val Ser Ala	
192 197 202 207	
ggc cct ttg tcc ggc gag aag gca gcg ata aac att cta gaa atc aat	791
Gly Pro Leu Ser Gly Glu Lys Ala Ala Ile Asn Ile Leu Glu Ile Asn	
208 213 218 223	
gag aaa ttg cgc ccc cag ctg gca gag aag aaa cag cag ttc aga aac	839
Glu Lys Leu Arg Pro Gln Leu Ala Glu Lys Lys Gln Gln Phe Arg Asn	
224 229 234 239	
ctc aaa gag aaa tgt ttt cta act caa ctg gcc ggc ttc ctg gcc aac	887
Leu Lys Glu Lys Cys Phe Leu Thr Gln Leu Ala Gly Phe Leu Ala Asn	
240 245 250 255	
cag cag aac aaa tac aaa tat gaa gag tgc aaa gat ctc ata aaa ttt	935

Gln Gln Asn Lys Tyr	Lys Tyr Glu Glu Cys	Lys Asp Leu Ile Lys Phe	
256	261	266	271
atg ctg agg aat gag	cga cag ttc aag gag	gag aag ctt gca gag cag	983
Met Leu Arg Asn Glu	Arg Gln Phe Lys Glu	Glu Lys Leu Ala Glu Gln	
272	277	282	287
ctc aag caa gct gag	gag ctc agg caa tat	aaa gtc ctg gtt cac gct	1031
Leu Lys Gln Ala Glu	Glu Leu Arg Gln Tyr	Lys Val Leu Val His Ala	
288	293	298	303
cag gaa cga gag ctg	acc cag tta agg gag	aag tta cgg gaa ggg aga	1079
Gln Glu Arg Glu Leu	Thr Gln Leu Arg Glu	Lys Leu Arg Glu Gly Arg	
304	309	314	319
gat gcc tcc cgc tca	ttg aat gag cat ctc	cag gcc ctc ctc act ccg	1127
Asp Ala Ser Arg Ser	Leu Asn Glu His Leu	Gln Ala Leu Leu Thr Pro	
320	325	330	335
gat gag ccg gac aag	tcc cag ggg cag gac	ctc caa gaa cag ctg gct	1175
Asp Glu Pro Asp Lys	Ser Gln Gly Gln Asp	Leu Gln Glu Gln Leu Ala	
336	341	346	351
gag ggg tgt aga ctg	aca cag cac ctt gtc	caa aag ctc agc cca gaa	1223
Glu Gly Cys Arg Leu	Thr Gln His Leu Val	Gln Lys Leu Ser Pro Glu	
352	357	362	367
aat gac aac gat gac	gat gaa gat gtt caa	gtt gag gtg gct gag aaa	1271
Asn Asp Asn Asp Asp	Asp Glu Asp Val Gln	Val Glu Val Ala Glu Lys	
368	373	378	383
gtg cag aaa tcg tct	gcc ccc agg gag atg	cag aag gct gaa gaa aag	1319
Val Gln Lys Ser Ser	Ala Pro Arg Glu Met	Gln Lys Ala Glu Glu Lys	
384	389	394	399
gaa gtc cct gag gac	tca ctg gag gaa tgt	gcc atc act tgt tca aat	1367
Glu Val Pro Glu Asp	Ser Leu Glu Glu Cys	Ala Ile Thr Cys Ser Asn	
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agc cat ggc cct tat	gac tcc aac cag cca	cat aag aaa acc aaa atc	1415
Ser His Gly Pro Tyr	Asp Ser Asn Gln Pro	His Lys Lys Thr Lys Ile	
416	421	426	431
aca ttt gag gaa gac	aaa gtc gac tca act	ctc att ggc tca tcc tct	1463
Thr Phe Glu Glu Asp	Lys Val Asp Ser Thr	Leu Ile Gly Ser Ser Ser	
432	437	442	447
cat gtt gaa tgg gag	gat gct gta cac att	att cca gaa aat gaa agt	1511
His Val Glu Trp Glu	Asp Ala Val His Ile	Ile Pro Glu Asn Glu Ser	
448	453	458	463
gat gat gag gaa gag	gaa gaa aaa gga cca	gtg tct ccc agg aat ctg	1559
Asp Asp Glu Glu Glu	Glu Glu Lys Gly Pro	Val Ser Pro Arg Asn Leu	
464	469	474	479
cag gag tct gaa gag	gag gaa gtc ccc cag	gag tcc tgg gat gaa ggt	1607
Gln Glu Ser Glu Glu	Glu Glu Val Pro Gln	Glu Ser Trp Asp Glu Gly	

480	485	490	495	
tat tcg act ctc tca att cct cct gaa atg ttg gcc tcg tac aag tct				1655
Tyr Ser Thr Leu Ser Ile Pro Pro Glu Met Leu Ala Ser Tyr Lys Ser				
496	501	506	511	
tac agc agc aca ttt cac tca tta gag gaa cag caa gtc tgc atg gct				1703
Tyr Ser Ser Thr Phe His Ser Leu Glu Glu Gln Gln Val Cys Met Ala				
512	517	522	527	
gtt gac ata ggc aga cat cgg tgg gat caa gtg aaa aag gag gac cac				1751
Val Asp Ile Gly Arg His Arg Trp Asp Gln Val Lys Lys Glu Asp His				
528	533	538	543	
gag gca aca ggt ccc agg ctc agc aga gag ctg ctg gat gag aaa ggg				1799
Glu Ala Thr Gly Pro Arg Leu Ser Arg Glu Leu Leu Asp Glu Lys Gly				
544	549	554	559	
cct gaa gtc ttg cag gac tca ctg gat aga tgt tat tca act cct tca				1847
Pro Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro Ser				
560	565	570	575	
ggg tgt ctt gaa ctg act gac tca tgc cag ccc tac aga agt gcc ttt				1895
Gly Cys Leu Glu Leu Thr Asp Ser Cys Gln Pro Tyr Arg Ser Ala Phe				
576	581	586	591	
tac gta ttg gag caa cag cgt gtt ggc ttg gct gtt aac atg gat gaa				1943
Tyr Val Leu Glu Gln Arg Val Gly Leu Ala Val Asn Met Asp Glu				
592	597	602	607	
att gaa aag tac caa gaa gtg gaa gaa gac caa gac cca tca tgc ccc				1991
Ile Glu Lys Tyr Gln Glu Val Glu Glu Asp Gln Asp Pro Ser Cys Pro				
608	613	618	623	
agg ctc agc agg gag ctg ctg gat gag aaa gag cct gaa gtc ttg cag				2039
Arg Leu Ser Arg Glu Leu Leu Asp Glu Lys Glu Pro Glu Val Leu Gln				
624	629	634	639	
gac tca ctg ggt aga tgt tat tcg act cct tca ggt tat ctt gaa ctg				2087
Asp Ser Leu Gly Arg Cys Tyr Ser Thr Pro Ser Gly Tyr Leu Glu Leu				
640	645	650	655	
cct gac tta ggc cag ccc tac agc agt gct gtt tac tca ttg gag gaa				2135
Pro Asp Leu Gly Gln Pro Tyr Ser Ser Ala Val Tyr Ser Leu Glu Glu				
656	661	666	671	
cag tac ctt ggc ttg gct ctt gac gtg gac aga att aaa aag gac caa				2183
Gln Tyr Leu Gly Leu Ala Leu Asp Val Asp Arg Ile Lys Lys Asp Gln				
672	677	682	687	
gaa gag gaa gaa gac caa ggc cca cca tgc ccc agg ctc agc agg gag				2231
Glu Glu Glu Glu Asp Gln Gly Pro Pro Cys Pro Arg Leu Ser Arg Glu				
688	693	698	703	
ctg ctg gag gta gta gag cct gaa gtc ttg cag gac tca ctg gat aga				2279
Leu Leu Glu Val Val Glu Pro Glu Val Leu Gln Asp Ser Leu Asp Arg				
704	709	714	719	

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Cys Tyr Ser Thr Pro Ser Ser Cys Leu Glu Gln Pro Asp Ser Cys Gln	
720 725 730 735	
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Gln Leu Lys Gln Ala Glu Glu Leu Arg Gln Tyr Lys Val Leu Val His		
16 21 26 31		
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Ala Gln Glu Arg Glu Leu Thr Gln Leu Arg Glu Lys Leu Arg Glu Gly		
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Lys Val Leu Glu Ser Ser Ser Pro Arg Glu Met Gln Lys Ala Glu Glu		
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Ser Lys Val Pro Glu Asp Ser Leu Glu Glu Cys Ala Ile Thr Cys Ser		
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Pro Gly Pro Thr Ser Ser Ala Thr Asn Val Ser Met Val Val Ser Ala		
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272 277 282 287	
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Leu Lys Gln Ala Glu Glu Leu Arg Gln Tyr Lys Val Leu Val His Ala	
288 293 298 303	
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Val Gln Lys Ser Ser Ala Pro Arg Glu Met Gln Lys Ala Glu Glu Lys	
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Met Leu Arg Asn Glu Arg Gln Phe Lys Glu Glu Lys Leu Ala Glu  
1 5 10  
cag ctc aag caa gct gag gag ctc agg caa tat aaa gtc ctg gtt cac 215  
Gln Leu Lys Gln Ala Glu Glu Leu Arg Gln Tyr Lys Val Leu Val His  
16 21 26 31  
gct cag gaa cga gag ctg acc cag tta agg gag aag tta cgg gaa ggg 263  
Ala Gln Glu Arg Glu Leu Thr Gln Leu Arg Glu Lys Leu Arg Glu Gly

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Arg Asp Ala Ser Arg Ser Leu Asn Glu His Leu Gln Ala Leu Leu Thr				
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Pro Asp Glu Pro Asp Lys Ser Gln Gly Gln Asp Leu Gln Glu Gln Leu				
64	69	74	79	
gct gag ggg tgt aga ctg gca cag cac ctt gtc caa aag ctc agc cca				407
Ala Glu Gly Cys Arg Leu Ala Gln His Leu Val Gln Lys Leu Ser Pro				
80	85	90	95	
gaa aat gat gaa gat gag gat gaa gat gtt caa gtt gag gag gat gag				455
Glu Asn Asp Glu Asp Glu Asp Glu Asp Val Gln Val Glu Glu Asp Glu				
96	101	106	111	
aaa gtg ctg gaa tca tct tcc ccc agg gag atg cag aag gct gaa gaa				503
Lys Val Leu Glu Ser Ser Ser Pro Arg Glu Met Gln Lys Ala Glu Glu				
112	117	122	127	
agc aaa gtc cct gag gac tca ctg gag gaa tgt gcc atc act tgt tca				551
Ser Lys Val Pro Glu Asp Ser Leu Glu Glu Cys Ala Ile Thr Cys Ser				
128	133	138	143	
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Asn Ser His Gly Pro Cys Asp Ser Asn Gln Pro His Lys Asn Ile Lys				
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Ile Thr Phe Glu Glu Asp Glu Val Asn Ser Thr Leu Val Val Asp Arg				
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Glu Ser Ser His Asp Glu Cys Gln Asp Ala Leu Asn Ile Leu Pro Val				
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cct ggc ccc acc tct tct gcc aca aac gtc agc atg gtg gta tca gcc				743
Pro Gly Pro Thr Ser Ser Ala Thr Asn Val Ser Met Val Val Ser Ala				
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Gly Pro Leu Ser Gly Glu Lys Ala Ala Ile Asn Ile Leu Glu Ile Asn				
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Leu Lys Glu Lys Cys Phe Leu Thr Gln Leu Ala Gly Phe Leu Ala Asn				
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Gln Gln Asn Lys Tyr Lys Tyr Glu Glu Cys Lys Asp Leu Ile Lys Phe				
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Leu Lys Gln Ala Glu Glu Leu Arg Gln Tyr Lys Val Leu Val His Ala	
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Gln Glu Arg Glu Leu Thr Gln Leu Arg Glu Lys Leu Arg Glu Gly Arg	
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Asn Asp Asn Asp Asp Asp Glu Asp Val Gln Val Glu Val Ala Glu Lys	
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Thr Phe Glu Glu Asp Lys Val Asp Ser Thr Leu Ile Gly Ser Ser Ser	
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His Val Glu Trp Glu Asp Ala Val His Ile Ile Pro Glu Asn Glu Ser	
448 453 458 463	
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Asp Asp Glu Glu Glu Glu Glu Lys Gly Pro Val Ser Pro Arg Asn Leu	
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Gln Glu Ser Glu Glu Glu Glu Val Pro Gln Glu Ser Trp Asp Glu Gly	
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Tyr Ser Thr Leu Ser Ile Pro Pro Glu Met Leu Ala Ser Tyr Lys Ser	
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Val Asp Ile Gly Arg His Arg Trp Asp Gln Val Lys Lys Glu Asp His	
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Pro Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro Ser	
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Gly Cys Leu Glu Leu Thr Asp Ser Cys Gln Pro Tyr Arg Ser Ala Phe	
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592 597 602 607	
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Lys His Val Gly Phe Ser Leu Asp Val Gly Glu Ile Glu Lys Lys Gly	
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Val Gly Leu Ala Val Asp Met Asp Glu Ile Glu Lys Tyr Gln Glu Val	
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Leu Ser Arg Glu Leu Leu Glu Val Val Glu Pro Glu Val Leu Gln Asp	

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ggg aag aaa aga agg gga aga aga tca aag aag gaa aga aga agg gga			3191
Gly Lys Lys Arg Arg Gly Arg Arg Ser Lys Lys Glu Arg Arg Arg Gly			
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Thr Val Gly Ala Leu Pro Arg Gly Pro Arg Gln Asn Ser Arg Leu Gly  
32 37 42 47  
ctc ccg ctg ctg ctg atg ccc gaa gag gcg cgg ctc ttg gcc gag atc 310  
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Gly Ala Val Thr Leu Val Ser Ala Pro Arg Pro Asp Ser Arg His His  
64 69 74 79  
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Pro Arg Pro Val Lys Ala Arg Pro Leu Asp Trp Arg Val Gln Ser Lys		
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Ala His Tyr Ile Ala Gln Cys Trp Ala Pro Glu Asp Thr Ile Pro Leu		
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304

309

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 38 43 48 53

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 Gln Leu Gly Ala Ala Ser Ser Ala Glu Gly His Val Gly Gln Gly Ala  
 54 59 64 69

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 Pro Gly Leu Met Gly Asn Met Asn Pro Glu Gly Gly Val Asn His Glu

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Asn Gly Met Asn Arg Asp Gly Gly Met Ile Pro Glu Gly Gly Gly Gly				
86	91	96	101	
aac cag gag cct cgg cag cag ccg cag ccc ccg ccg gag gag ccg gcc				689
Asn Gln Glu Pro Arg Gln Gln Pro Gln Pro Pro Pro Glu Glu Pro Ala				
102	107	112	117	
cag gcg gcc atg gag ggt ccg cag ccc gag aac atg cag cca cga act				737
Gln Ala Ala Met Glu Gly Pro Gln Pro Glu Asn Met Gln Pro Arg Thr				
118	123	128	133	
cgg cgc acg aag ttc acg ctg ttg cag gtg gag gag ctg gaa agt gtt				785
Arg Arg Thr Lys Phe Thr Leu Leu Gln Val Glu Glu Leu Glu Ser Val				
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Phe Arg His Thr Gln Tyr Pro Asp Val Pro Thr Arg Arg Glu Leu Ala				
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Glu Asn Leu Gly Val Thr Glu Asp Lys Val Arg Val Trp Phe Lys Asn				
166	171	176	181	
aaa agg gcc aga tgt agg cga cat cag aga gaa tta atg ctc gcc aat				929
Lys Arg Ala Arg Cys Arg Arg His Gln Arg Glu Leu Met Leu Ala Asn				
182	187	192	197	
gaa cta cgt gct gac cca gac gac tgt gtc tac atc gtc gtg gac tag				977
Glu Leu Arg Ala Asp Pro Asp Asp Cys Val Tyr Ile Val Val Asp *				
198	203	208	213	
cc				979

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cccgaagcg cgagcaaggc cgccagatgt gcaggcagcg gaggaggaga aagag atg	178
Met	
1	

gac ctc ccg gac tcg gcc tcg agg gtc ttc tgc ggc cgc atc ctg agc	226
Asp Leu Pro Asp Ser Ala Ser Arg Val Phe Cys Gly Arg Ile Leu Ser	
2 7 12 17	
atg gtg aac aca gat gat gtc aac gcc atc atc ctg gcc cag aag aac	274
Met Val Asn Thr Asp Asp Val Asn Ala Ile Ile Leu Ala Gln Lys Asn	
18 23 28 33	
atg ctg gac cgc ttt gag aag acc aat gag atg ctg ctc aac ttc aac	322
Met Leu Asp Arg Phe Glu Lys Thr Asn Glu Met Leu Leu Asn Phe Asn	
34 39 44 49	
aac ctg tcc agt gcc cgc ctg cag cag atg agc gaa cgc ttc ctg cac	370
Asn Leu Ser Ser Ala Arg Leu Gln Gln Met Ser Glu Arg Phe Leu His	
50 55 60 65	
cac acg agg acc cta gta gag atg aaa cgg gac ctg gac agc atc ttc	418
His Thr Arg Thr Leu Val Glu Met Lys Arg Asp Leu Asp Ser Ile Phe	
66 71 76 81	
cgc cgt atc agg acg ctg aaa ggg aaa ctg gcc agg cag cac cca gag	466
Arg Arg Ile Arg Thr Leu Lys Gly Lys Leu Ala Arg Gln His Pro Glu	
82 87 92 97	
gcc ttc agc cat atc cca gag gca tcc ttc ctg gag gaa gag gat gaa	514
Ala Phe Ser His Ile Pro Glu Ala Ser Phe Leu Glu Glu Glu Asp Glu	
98 103 108 113	
gac ccc atc cca ccc agc acc acg acc acc att gcc acc tca gaa cag	562
Asp Pro Ile Pro Pro Ser Thr Thr Thr Thr Ile Ala Thr Ser Glu Gln	
114 119 124 129	
agc acg ggc tca tgt gac acc agc ccc gac acc gtc tcg ccc tcc ctg	610
Ser Thr Gly Ser Cys Asp Thr Ser Pro Asp Thr Val Ser Pro Ser Leu	
130 135 140 145	
agc ccc ggc ttc gag gac ctg tcc cat gtc cag cct ggc tcc cca gcc	658
Ser Pro Gly Phe Glu Asp Leu Ser His Val Gln Pro Gly Ser Pro Ala	
146 151 156 161	
atc aac ggc cgc agc cag aca gat gac gag gag atg acg ggc gaa tag	706
Ile Asn Gly Arg Ser Gln Thr Asp Asp Glu Glu Met Thr Gly Glu *	
162 167 172 177	
ccctgctgcc cgggtgccctt gaggggggtct cagggcagca gcatacaagg tggcagcggg	766
taaccctgcc ttgtttctgtc atccagggct cctttgctgc cccgtttctgt caccagggc	826
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<211> 878

<212> DNA

<213> Homo sapiens



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aaacctttct aatgcccata acccagcctc agaccc atg gag ccc acg aga gac		174
	Met Glu Pro Thr Arg Asp	
	1	
tgc ccg ctg ttc ggg ggc gcc ttt tcc gcc atc ctc ccc atg ggg gcc		222
Cys Pro Leu Phe Gly Gly Ala Phe Ser Ala Ile Leu Pro Met Gly Ala		
7 12 17 22		
att gac gta agc gac ctc cga ccg gtc ccg gac aat caa gaa gtt ttc		270
Ile Asp Val Ser Asp Leu Arg Pro Val Pro Asp Asn Gln Glu Val Phe		
23 28 33 38		
tgc cat ccc gtg acg gac cag agc ctg ata gtg gaa ctt ctc gag ctg		318
Cys His Pro Val Thr Asp Gln Ser Leu Ile Val Glu Leu Leu Glu Leu		
39 44 49 54		
cag gcc cac gta cgg ggc gaa gcg gct gcg ccg tac cac ttt gag gat		366
Gln Ala His Val Arg Gly Glu Ala Ala Arg Tyr His Phe Glu Asp		
55 60 65 70		
gtt ggt ggc gtg cag ggg gct agg gct gtc cat gtg gag tct gtt cag		414
Val Gly Gly Val Gln Gly Ala Arg Ala Val His Val Glu Ser Val Gln		
71 76 81 86		
cct ctc agt ttg gag aac ctg gcc ctg agg ggc cgc tgt caa gaa gcc		462
Pro Leu Ser Leu Glu Asn Leu Ala Leu Arg Gly Arg Cys Gln Glu Ala		
87 92 97 102		
tgg gtc ctc tct ggc aag cag cag ata gct aag gaa aac cag cag gta		510
Trp Val Leu Ser Gly Lys Gln Gln Ile Ala Lys Glu Asn Gln Gln Val		
103 108 113 118		
gca aag gac gtg aca ctt cat cag gcc ttg ctg agg ctg ccc cag tac		558
Ala Lys Asp Val Thr Leu His Gln Ala Leu Leu Arg Leu Pro Gln Tyr		
119 124 129 134		
cag act gat ctc ttg ctt acc ttc aat cag ccc ccc cct gac aac agg		606
Gln Thr Asp Leu Leu Leu Thr Phe Asn Gln Pro Pro Pro Asp Asn Arg		
135 140 145 150		
tca tct ctt ggc ccc gaa aat ctg tca cct gca ccc tgg agc ctg ggt		654
Ser Ser Leu Gly Pro Glu Asn Leu Ser Pro Ala Pro Trp Ser Leu Gly		

151	156	161	166	
gac ttt gaa cag ctg gtg acc agt ctg acc ctt cac gat cct aac atc				702
Asp Phe Glu Gln Leu Val Thr Ser Leu Thr Leu His Asp Pro Asn Ile				
167	172	177	182	
ttt ggt ccc cag taa aggcgctgaa gcactgcatg atgttgctga gaacttgggg				757
Phe Gly Pro Gln *				
183				
actcggttct gtgaggggga aaagaggttg aaaagagggg ttctctttat ttcttcctg				817
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Met Ile Arg Arg Val Leu Pro	
1 5	
cac ggc atg ggc cgg ggc ctc ttg acc cgg agg cca ggc acg cgc aga	161
His Gly Met Gly Arg Gly Leu Leu Thr Arg Arg Pro Gly Thr Arg Arg	
8 13 18 23	
gga ggc ttt tct ctg gac tgg gat gga aag gtg tct gag att aag aag	209
Gly Gly Phe Ser Leu Asp Trp Asp Gly Lys Val Ser Glu Ile Lys Lys	
24 29 34 39	
aag atc aag tcg atc ctg cct gga agg tcc tgt gat cta ctg caa gac	257
Lys Ile Lys Ser Ile Leu Pro Gly Arg Ser Cys Asp Leu Leu Gln Asp	
40 45 50 55	
acc agc cac ctg cct ccc gag cac tcg gat gtg gtg atc gtg gga ggt	305
Thr Ser His Leu Pro Pro Glu His Ser Asp Val Val Ile Val Gly Gly	
56 61 66 71	
ggg gtg ctt ggc ttg tct gtg gcc tat tgg ctg aag aag ctg gag agc	353
Gly Val Leu Gly Leu Ser Val Ala Tyr Trp Leu Lys Lys Leu Glu Ser	
72 77 82 87	
aga cga ggt gct att cga gtg cta gtg gtg gaa cgg gac cac acg tat	401
Arg Arg Gly Ala Ile Arg Val Leu Val Val Glu Arg Asp His Thr Tyr	

88	93	98	103	
tca cag gcc tcc act ggg ctc tca gta ggt ggg att tgt cag cag ttc				449
Ser Gln Ala Ser Thr Gly Leu Ser Val Gly Gly Ile Cys Gln Gln Phe				
104	109	114	119	
tca ttg cct gag aac atc cag ctc tcc ctc ttt tca gcc agc ttt cta				497
Ser Leu Pro Glu Asn Ile Gln Leu Ser Leu Phe Ser Ala Ser Phe Leu				
120	125	130	135	
cgg aac atc aat gag tac ctg gcc gta gtc gat gct cct ccc ctg gac				545
Arg Asn Ile Asn Glu Tyr Leu Ala Val Val Asp Ala Pro Pro Leu Asp				
136	141	146	151	
ctc cgg ttc aac ccc tcg ggc tac ctc ttg ctg gct tca gaa aag gat				593
Leu Arg Phe Asn Pro Ser Gly Tyr Leu Leu Leu Ala Ser Glu Lys Asp				
152	157	162	167	
gct gca gcc atg gag agc aac gtg aaa gtg cag agg cag gag gga gcc				641
Ala Ala Ala Met Glu Ser Asn Val Lys Val Gln Arg Gln Glu Gly Ala				
168	173	178	183	
aaa gtt tct ctg atg tct cct gat cag ctt cgg aac aag ttt ccc tgg				689
Lys Val Ser Leu Met Ser Pro Asp Gln Leu Arg Asn Lys Phe Pro Trp				
184	189	194	199	
ata aac aca gag gga gtg gct ttg gcg tct tat ggg atg gag gac gaa				737
Ile Asn Thr Glu Gly Val Ala Leu Ala Ser Tyr Gly Met Glu Asp Glu				
200	205	210	215	
ggg tgg ttt gac ccc tgg tgt ctg ctc cag ggg ctt cgg cga aag gtc				785
Gly Trp Phe Asp Pro Trp Cys Leu Leu Gln Gly Leu Arg Arg Lys Val				
216	221	226	231	
cag tcc ttg gga gtc ctt ttc tgc cag gga gag gtg aca cgt ttt gtc				833
Gln Ser Leu Gly Val Leu Phe Cys Gln Gly Glu Val Thr Arg Phe Val				
232	237	242	247	
tct tca tct caa cgc atg ttg acc aca gat gac aaa gcg gtg gtc ttg				881
Ser Ser Ser Gln Arg Met Leu Thr Thr Asp Asp Lys Ala Val Val Leu				
248	253	258	263	
aaa agg atc cat gaa gtc cat gtg aag atg gac cgc agc ctg gag tac				929
Lys Arg Ile His Glu Val His Val Lys Met Asp Arg Ser Leu Glu Tyr				
264	269	274	279	
cag cct gtg gaa tgc gcc att gtg atc aac gca gcc gga gcc tgg tct				977
Gln Pro Val Glu Cys Ala Ile Val Ile Asn Ala Ala Gly Ala Trp Ser				
280	285	290	295	
gcg caa atc gca gca ctg gct ggt gtt gga gag ggg ccg cct ggc acc				1025
Ala Gln Ile Ala Ala Leu Ala Gly Val Gly Glu Gly Pro Pro Gly Thr				
296	301	306	311	
ctg cag ggc acc aag cta cct gtg gag ccg agg aaa agg tat gtg tat				1073
Leu Gln Gly Thr Lys Leu Pro Val Glu Pro Arg Lys Arg Tyr Val Tyr				
312	317	322	327	

gtg tgg cac tgc ccc cag gga cca ggc cta gag act ccg ctt gtt gca	1121
Val Trp His Cys Pro Gln Gly Pro Gly Leu Glu Thr Pro Leu Val Ala	
328 333 338 343	
gac acc agt gga gcc tat ttt cgc cgg gaa gga tta ggt agc aac tac	1169
Asp Thr Ser Gly Ala Tyr Phe Arg Arg Glu Gly Leu Gly Ser Asn Tyr	
344 349 354 359	
cta ggt ggt cgt agc ccc act gag cag gaa gaa ccg gac ccg gcg aac	1217
Leu Gly Gly Arg Ser Pro Thr Glu Gln Glu Glu Pro Asp Pro Ala Asn	
360 365 370 375	
ctg gaa gtg gac cat gat ttc ttc cag gac aag gtg tgg ccc cat ttg	1265
Leu Glu Val Asp His Asp Phe Phe Gln Asp Lys Val Trp Pro His Leu	
376 381 386 391	
gcc ctg agg gtc cca gct ttt gag act ctg aag gtt cag agc gcc tgg	1313
Ala Leu Arg Val Pro Ala Phe Glu Thr Leu Lys Val Gln Ser Ala Trp	
392 397 402 407	
gcc ggc tat tac gac tac aac acc ttt gac cag aat ggc gtg gtg ggc	1361
Ala Gly Tyr Tyr Asp Tyr Asn Thr Phe Asp Gln Asn Gly Val Val Gly	
408 413 418 423	
ccc cac ccg cta gtt gtc aac atg tac ttt gct act ggc ttc agt ggt	1409
Pro His Pro Leu Val Val Asn Met Tyr Phe Ala Thr Gly Phe Ser Gly	
424 429 434 439	
cac ggg ctc cag cag gcc cct ggc att ggg cga gct gta gca gag atg	1457
His Gly Leu Gln Gln Ala Pro Gly Ile Gly Arg Ala Val Ala Glu Met	
440 445 450 455	
gta ctg aag ggc agg ttc cag acc atc gac ctg agc ccc ttc ctc ttt	1505
Val Leu Lys Gly Arg Phe Gln Thr Ile Asp Leu Ser Pro Phe Leu Phe	
456 461 466 471	
acc cgc ttt tac ttg gga gag aag atc cag gag aac aac atc atc tga	1553
Thr Arg Phe Tyr Leu Gly Glu Lys Ile Gln Glu Asn Asn Ile Ile *	
472 477 482 487	
gcatgtgtgc totgcactgg ctccactggc ttgcatcctg gctgtgttca cagccttggt	1613
tgctgcttcc atcttcccca gtactgtgcc aggcttctc cccctcccca gtgtcctctc	1673
ctctcaggca ggccattgca cccatatggc tgggcaggca caggcagtga ggccgaggcc	1733
aatagcgagt gatgagcggg atcctaggac tgatctgtag cccatgctga tgtcaccac	1793
cagggcaatc catctggagg cctgagcacc ctggcccagg actggcttca tcctggcact	1853
gaccaggaaa gactgcctct gacctctta gcagacagag cccaggcatg ggagcactct	1913
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atgtaattaa ctccttcaaa aaaaaaaaaa	2002

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<220>  
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 <222> (454) .. (696)

<400> 685

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ggaggttgag gcaggaagat cacttgagcc caggagtttg aggttgagcgt gagctatgat      180
tgtgccactg tattccagcc tgggcagcag agtgagatgc tatttcaaaa aaataaagta      240
aattaaaaaa aaataagagc ctttgatggc aaatgttaga aaaatatgta aataaaaaca      300
ttggcacttt taaataggtc atcctgtccc aaagaggtag tgtttcccc aatacccaca      360
gcccctcaca caggcgtgtg cgcacacact cagggtctat ggatcctgtt ttggtgaacc      420
ggactgactt cttcttgccct gccactccag gtg atg atg acc aaa cgg acc aaa      474
                               Met Met Thr Lys Arg Thr Lys
                               1               5

gac atg ggc aag ttc agt tct gtc acc gtg tct acc att gat gaa gag      522
Asp Met Gly Lys Phe Ser Ser Val Thr Val Ser Thr Ile Asp Glu Glu
   8               13               18               23

gaa gag gag att gag gct agg gaa gtt gct gac tca tat gca cag aat      570
Glu Glu Glu Ile Glu Ala Arg Glu Val Ala Asp Ser Tyr Ala Gln Asn
  24               29               34               39

gcc aaa gtg att gaa aaa cag ctg gag cgc aaa ggc atg agc aag agg      618
Ala Lys Val Ile Glu Lys Gln Leu Glu Arg Lys Gly Met Ser Lys Arg
  40               45               50               55

cga ctg caa gag ctg gct gaa ttg gaa gcc aag aaa gcg aaa atg aag      666
Arg Leu Gln Glu Leu Ala Glu Leu Glu Ala Lys Lys Ala Lys Met Lys
  56               61               66               71

ggg acc ttg att gac aac cag ttc aaa taa c caggcctttt tctaagccct      717
Gly Thr Leu Ile Asp Asn Gln Phe Lys  *
  72               77

agactagagg caagcattta gatcaggagg caaagtaatt tcttgattac atagacggat      777
tcttatttat gccctagcag aaggctttac gttgtttccc attgattctc ctacattcag      837
tgaggtcttt aactgagtc atttaacttg ctttcttttt ttttttggaa acaaagcttt      897
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gttttttccc ccaggaggga gggcaggggg ctaaaatggc cccactgaac cccacccctc 957  
tagcctgggg aaaaaattga gactttgtct tttcaaaaaa aaaaaa 1003

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Met  
1

gcg ttg ctg gtg cga gtc ctt agg aac cag act agc att tct cag tgg 164  
Ala Leu Leu Val Arg Val Leu Arg Asn Gln Thr Ser Ile Ser Gln Trp  
2 7 12 17

gtt cca gta tgc agc cga ttg ata cct gtg tct cct acc caa gga cag 212  
Val Pro Val Cys Ser Arg Leu Ile Pro Val Ser Pro Thr Gln Gly Gln  
18 23 28 33

ggg gac agg gct ctg tct cgc act tcc cag tgg ccc cag atg agc cag 260  
Gly Asp Arg Ala Leu Ser Arg Thr Ser Gln Trp Pro Gln Met Ser Gln  
34 39 44 49

tcc cga gca tgt ggt gga tca gaa cag att cct gga ata gac ata cag 308  
Ser Arg Ala Cys Gly Gly Ser Glu Gln Ile Pro Gly Ile Asp Ile Gln  
50 55 60 65

ctg aat agg aag tat cac acc aca cgt aag ctt tct act acc aaa gat 356  
Leu Asn Arg Lys Tyr His Thr Thr Arg Lys Leu Ser Thr Thr Lys Asp  
66 71 76 81

tcc cca cag cct gtt gag gag aag gtt ggt gct ttc aca aag ata ata 404  
Ser Pro Gln Pro Val Glu Glu Lys Val Gly Ala Phe Thr Lys Ile Ile  
82 87 92 97

gaa gcc atg gga ttc acg gga cct ttg aaa tac agt aaa tgg aag att 452  
Glu Ala Met Gly Phe Thr Gly Pro Leu Lys Tyr Ser Lys Trp Lys Ile  
98 103 108 113

aag att gcg gcc ctg cgc atg tat act agc tgt gtg gag aaa act gac 500  
Lys Ile Ala Ala Leu Arg Met Tyr Thr Ser Cys Val Glu Lys Thr Asp  
114 119 124 129

ttc gag gaa ttc ttt cta agg tgt cag atg cct gat aca ttc aat tca 548  
Phe Glu Glu Phe Phe Leu Arg Cys Gln Met Pro Asp Thr Phe Asn Ser

130	135	140	145	
tgg ttt ctt ata acc cta ctc cac gtc tgg atg tgt cta gtc cga atg				596
Trp Phe Leu Ile Thr Leu Leu His Val Trp Met Cys Leu Val Arg Met				
146	151	156	161	
aag cag gaa ggc cgg agt ggg aag tac atg tgt cgt atc ata gtt cat				644
Lys Gln Glu Gly Arg Ser Gly Lys Tyr Met Cys Arg Ile Ile Val His				
162	167	172	177	
ttt atg tgg gag gat gtt cag cag cgc ggc aga gtc atg ggg gtt aat				692
Phe Met Trp Glu Asp Val Gln Gln Arg Gly Arg Val Met Gly Val Asn				
178	183	188	193	
ccc tat atc ctg aag aag aac atg atc ctc atg aca aat cat ttc tat				740
Pro Tyr Ile Leu Lys Lys Asn Met Ile Leu Met Thr Asn His Phe Tyr				
194	199	204	209	
gca gcg atc ttg gga tat gat gag ggg atc ctt tca gat gat cat ggg				788
Ala Ala Ile Leu Gly Tyr Asp Glu Gly Ile Leu Ser Asp Asp His Gly				
210	215	220	225	
ctg gcc gct gcc ctc tgg aga acc ttc ttc aac cgg aaa tgt gaa gac				836
Leu Ala Ala Ala Leu Trp Arg Thr Phe Phe Asn Arg Lys Cys Glu Asp				
226	231	236	241	
cct cga cat ctt gaa ttg ctg gta gag tat gtg agg aaa cag ata cag				884
Pro Arg His Leu Glu Leu Leu Val Glu Tyr Val Arg Lys Gln Ile Gln				
242	247	252	257	
tac ctg gac tcc atg aac ggg gag gat ctg ctt ctg aca ggg gag gtg				932
Tyr Leu Asp Ser Met Asn Gly Glu Asp Leu Leu Leu Thr Gly Glu Val				
258	263	268	273	
agc tgg cgc cct cta gtg gag aag aat cct cag agc atc ctg aag ccc				980
Ser Trp Arg Pro Leu Val Glu Lys Asn Pro Gln Ser Ile Leu Lys Pro				
274	279	284	289	
cat tct ccg act tac aac gac gag gga ctt tga tgggctgg gccctccgca				1031
His Ser Pro Thr Tyr Asn Asp Glu Gly Leu *				
290	295	300		
cggcccccca gctggcttcg aggaacctcc aggagagaag tgccctgttg tccaggaccc				1091
tgacagaaagt ggccctgaact gacctctgaa cagcatctgt caaataacctg gccccatttg				1151
tgttgagttt cctcttagtg tgcccaggag tctgatctgc tgggggtacag ggctgggaga				1211
accctagct ctcccggggt gtcctctccc ttaggggaag ccccgagtga gagtccccca				1271
gcacacactc cccaaccccc tccagcaact acatgtgact gatagctttt cccaaaggcc				1331
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cagattgtaa tgctgccgag tccggtcggt gaccacgcgt tgtccctcgg ctttcagcca				1451
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 <211> 1212  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (131)..(1027)

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ccctgccacc  atg acg gaa cag gcc atc tcc ttc gcc aaa gac ttc ttg      169
              Met Thr Glu Gln Ala Ile Ser Phe Ala Lys Asp Phe Leu
                1             5             10

gcc gga ggc atc gcc gcc gcc atc tcc aag acg gcc gtg gct ccg atc      217
Ala Gly Gly Ile Ala Ala Ala Ile Ser Lys Thr Ala Val Ala Pro Ile
  14             19             24             29

gag cgg gtc aag ctg ctg ctg cag gtc cag cac gcc agc aag cag atc      265
Glu Arg Val Lys Leu Leu Leu Gln Val Gln His Ala Ser Lys Gln Ile
  30             35             40             45

gcc gcc gac aag cag tac aag ggc atc gtg gac tgc att gtc cgc atc      313
Ala Ala Asp Lys Gln Tyr Lys Gly Ile Val Asp Cys Ile Val Arg Ile
  46             51             56             61

ccc aag gag cag ggc gtg ctg tcc ttc tgg agg ggc aac ctt gcc aac      361
Pro Lys Glu Gln Gly Val Leu Ser Phe Trp Arg Gly Asn Leu Ala Asn
  62             67             72             77

gtc att cgc tac ttc ccc act caa gcc ctc aac ttc gcc ttc aag gat      409
Val Ile Arg Tyr Phe Pro Thr Gln Ala Leu Asn Phe Ala Phe Lys Asp
  78             83             88             93

aag tac aag cag atc ttc ctg ggg ggc gtg gac aag cac acg cag ttc      457
Lys Tyr Lys Gln Ile Phe Leu Gly Gly Val Asp Lys His Thr Gln Phe
  94             99             104            109

tgg agg tac ttt gcg ggc aac ctg gcc tcc ggc ggt gcg gcc ggc gcg      505
Trp Arg Tyr Phe Ala Gly Asn Leu Ala Ser Gly Gly Ala Ala Gly Ala
  110            115            120            125

acc tcc ctc tgc ttc gtg tac ccg ctg gat ttc gcc aga acc cgc ctg      553
Thr Ser Leu Cys Phe Val Tyr Pro Leu Asp Phe Ala Arg Thr Arg Leu
  126            131            136            141

gca gcg gac gtg gga aag tca ggc aca gag cgc gag ttc cga ggc ctg      601
Ala Ala Asp Val Gly Lys Ser Gly Thr Glu Arg Glu Phe Arg Gly Leu
  142            147            152            157

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gga gac tgc ctg gtg aag atc acc aag tcc gac ggc atc cgg ggc ctg	649
Gly Asp Cys Leu Val Lys Ile Thr Lys Ser Asp Gly Ile Arg Gly Leu	
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tac cag ggc ttc agt gtc tcc gtg cag ggc atc atc atc tac cgg gcg	697
Tyr Gln Gly Phe Ser Val Ser Val Gln Gly Ile Ile Ile Tyr Arg Ala	
174 179 184 189	
gcc tac ttc ggc gtg tac gat acg gcc aag ggc atg ctc ccc gac ccc	745
Ala Tyr Phe Gly Val Tyr Asp Thr Ala Lys Gly Met Leu Pro Asp Pro	
190 195 200 205	
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Lys Asn Thr His Ile Val Val Ser Trp Met Ile Ala Gln Thr Val Thr	
206 211 216 221	
gcc gtg gcc ggc gtg gtg tcc tac ccc ttc gac acg gtg cgg cgg cgc	841
Ala Val Ala Gly Val Val Ser Tyr Pro Phe Asp Thr Val Arg Arg Arg	
222 227 232 237	
atg atg atg cag tcc ggg cgc aaa gga gct gac atc atg tac acg ggc	889
Met Met Met Gln Ser Gly Arg Lys Gly Ala Asp Ile Met Tyr Thr Gly	
238 243 248 253	
acc gtc gac tgt tgg agg aag atc ttc aga gat gag ggg ggc aag gcc	937
Thr Val Asp Cys Trp Arg Lys Ile Phe Arg Asp Glu Gly Gly Lys Ala	
254 259 264 269	
ttc ttc aag ggt gcg tgg tcc aac gtc ctg cgg ggc atg ggg ggc gcc	985
Phe Phe Lys Gly Ala Trp Ser Asn Val Leu Arg Gly Met Gly Gly Ala	
270 275 280 285	
ttc gtg ctg gtc ctg tac gac gag ctc aag aag gtg atc taa gggccgc	1034
Phe Val Leu Val Leu Tyr Asp Glu Leu Lys Lys Val Ile *	
286 291 296	
ggcctcctcc acacacacac acacaccagg ggaaccaaga gaaccacgta gaatcctcaa	1094
ccgtgctggac catcaacctt cgagaaattc cagttgtctt tttccagcc gcacacctgc	1154
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tgactggacg caagtaactt ctaggtctgc agacaagagg aagagaag atg aag gaa	177
Met Lys Glu	
1	
gac tgt ctg ccg agt tct cac gtg ccc atc agt gac agc aag tcc att	225
Asp Cys Leu Pro Ser Ser His Val Pro Ile Ser Asp Ser Lys Ser Ile	
4 9 14 19	
cag aag tcg gag ctc tta ggc ctg ctg aaa acc tac aac tgc tac cat	273
Gln Lys Ser Glu Leu Leu Gly Leu Leu Lys Thr Tyr Asn Cys Tyr His	
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Glu Gly Lys Ser Phe Gln Leu Arg His Arg Glu Glu Glu Gly Thr Leu	
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Ile Ile Glu Gly Leu Leu Asn Ile Ala Trp Gly Leu Arg Arg Pro Ile	
52 57 62 67	
cgg ctg cag atg cag gat gac cgg gag cag gtg cac ctc ccc tcc acc	417
Arg Leu Gln Met Gln Asp Asp Arg Glu Gln Val His Leu Pro Ser Thr	
68 73 78 83	
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Ser Trp Met Pro Arg Arg Pro Ser Cys Pro Leu Lys Glu Pro Ser Pro	
84 89 94 99	
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Gln Asn Gly Asn Ile Thr Ala Gln Gly Pro Ser Ile Gln Pro Val His	
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Lys Ala Glu Ser Ser Thr Asp Ser Ser Gly Pro Leu Glu Glu Ala Glu	
116 121 126 131	
gag gcc ccc cag ctg atg cgg acc aag agc gac gcc agt tgc atg agc	609
Glu Ala Pro Gln Leu Met Arg Thr Lys Ser Asp Ala Ser Cys Met Ser	
132 137 142 147	
cag agg agg ccc aag tgc cgc gcc ccc ggt gag gcc cag cgc atc cgg	657
Gln Arg Arg Pro Lys Cys Arg Ala Pro Gly Glu Ala Gln Arg Ile Arg	
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Arg His Arg Phe Ser Ile Asn Gly His Phe Tyr Asn His Lys Thr Ser	
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Val Phe Thr Pro Ala Tyr Gly Ser Val Thr Asn Val Arg Val Asn Ser	
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acc atg aca acc ctg cag gtg ctc acc ctg ctg ctg aac aaa ttt agg	801
Thr Met Thr Thr Leu Gln Val Leu Thr Leu Leu Leu Asn Lys Phe Arg	

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Val Glu Asp Gly Pro Ser Glu Phe Ala Leu Tyr Ile Val His Glu Ser				
212	217	222	227	
ggg gag cgg aca aaa tta aaa gac tgc gag tac ccg ctg att tcc aga				897
Gly Glu Arg Thr Lys Leu Lys Asp Cys Glu Tyr Pro Leu Ile Ser Arg				
228	233	238	243	
atc ctg cat ggg cca tgt gag aag atc gcc agg atc ttc ctg atg gaa				945
Ile Leu His Gly Pro Cys Glu Lys Ile Ala Arg Ile Phe Leu Met Glu				
244	249	254	259	
gct gac ttg ggc gtg gaa gtc ccc cat gaa gtc gct cag tac att aag				993
Ala Asp Leu Gly Val Glu Val Pro His Glu Val Ala Gln Tyr Ile Lys				
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Phe Glu Met Pro Val Leu Asp Ser Phe Val Glu Lys Leu Lys Glu Glu				
276	281	286	291	
gaa gaa aga gaa ata atc aaa ctg acc atg aag ttc caa gcc ctg cgt				1089
Glu Glu Arg Glu Ile Ile Lys Leu Thr Met Lys Phe Gln Ala Leu Arg				
292	297	302	307	
ctg acg atg ctg cag cgc ctg gag cag ctg gtg gag gcc aag taa ctg				1137
Leu Thr Met Leu Gln Arg Leu Glu Gln Leu Val Glu Ala Lys *				
308	313	318		
gccaacacct gcctcttcca aagtccccag cagtggcagg tgtacactga gccctgggtg				1197
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 Ser Leu Glu Asp Pro Asn Ser Arg Pro Cys Arg Arg Thr Val Pro Ser  
 13 18 23 28  
 aca cta gag gaa gtc gtg cta ccc ccg cgg agt tgt cgt gtg ttc tgg 145  
 Thr Leu Glu Glu Val Val Leu Pro Pro Arg Ser Cys Arg Val Phe Trp  
 29 34 39 44  
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 Ile His Ser Gly Thr Thr Met Ser Lys Val Ser Phe Lys Ile Thr Leu  
 45 50 55 60  
 acg tcg gac cca cgg ctg ccg tac aaa gta ctc agt gtt cct gaa agt 241  
 Thr Ser Asp Pro Arg Leu Pro Tyr Lys Val Leu Ser Val Pro Glu Ser  
 61 66 71 76  
 aca cct ttc aca gca gtc tta aag ttt gca gca gaa gaa ttt aaa gtt 289  
 Thr Pro Phe Thr Ala Val Leu Lys Phe Ala Ala Glu Glu Phe Lys Val  
 77 82 87 92

cct gct gca aca agt gca att att acc aat gat gga ata gga ata aat 337  
 Pro Ala Ala Thr Ser Ala Ile Ile Thr Asn Asp Gly Ile Gly Ile Asn  
 93 98 103 108  
  
 cct gca cag act gct gga aat gtt ttt cta aaa cat ggt tca gaa ctg 385  
 Pro Ala Gln Thr Ala Gly Asn Val Phe Leu Lys His Gly Ser Glu Leu  
 109 114 119 124  
  
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 cgtgccgctg gctgggttac aacgcgatca ttcgtagttt tgtccatgaa gaccaggtct 180  
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 tggaaggctt catgcactga ctggtccac ccacagggga aaaccc atg agc atc 295  
 Met Ser Ile  
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atg caa ttc aaa gac acg ctg aac acc cca ctg cca gat tca tca ccg 343  
 Met Gln Phe Lys Asp Thr Leu Asn Thr Pro Leu Pro Asp Ser Ser Pro  
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 Val Ala Val Pro Leu Gly Ala Pro Ile Ala Val Ala Ser Thr Leu Ser  
 20 25 30 35

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 Val Glu His Asn Asp Gly Val Glu Thr Gly Ile Trp Ala Cys Thr Pro  
 36 41 46 51

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 Gly Arg Trp Arg Arg Gln Ile Thr Ser Gln Glu Phe Cys His Phe Ile  
 52 57 62 67

cag ggg cgc tgc acc ttc acg ccc gac gac ggg gaa acc ctg cac ata 535

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caa gcc ggt gac gca ctg atg ttg cca gcc aat agc acc ggt atc tgg																583
Gln	Ala	Gly	Asp	Ala	Leu	Met	Leu	Pro	Ala	Asn	Ser	Thr	Gly	Ile	Trp	
84					89					94					99	
gat atc cag gaa acc gtg cgc aag acc tat gtc ctg att ctg taa cgc																631
Asp	Ile	Gln	Glu	Thr	Val	Arg	Lys	Thr	Tyr	Val	Leu	Ile	Leu	*		
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Gln	Leu	Pro	Pro	Thr	Ser	Ser	Ser	Ser	Ala	Val	Ser	Glu	Ala	Ser	Phe		
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tcc tac aag gaa aac ctg att ggc gcc ctc ttg gcg atc ttc ggg cac																507	
Ser	Tyr	Lys	Glu	Asn	Leu	Ile	Gly	Ala	Leu	Leu	Ala	Ile	Phe	Gly	His		
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Leu	Val	Val	Ser	Ile	Ala	Leu	Asn	Leu	Gln	Lys	Tyr	Cys	His	Ile	Arg	
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Leu	Ala	Gly	Ser	Lys	Asp	Pro	Arg	Ala	Tyr	Phe	Lys	Thr	Lys	Thr	Trp	
61					66					71					76	
tgg	ctg	ggc	ctg	ttc	ctg	atg	ctt	ctg	ggc	gag	ctg	ggg	gtg	ttc	gcc	651
Trp	Leu	Gly	Leu	Phe	Leu	Met	Leu	Leu	Gly	Glu	Leu	Gly	Val	Phe	Ala	
77					82					87					92	
tcc	tac	gcc	ttc	gcg	ccg	ctg	tca	ctc	atc	gtg	ccc	ctc	agc	gca	gtt	699
Ser	Tyr	Ala	Phe	Ala	Pro	Leu	Ser	Leu	Ile	Val	Pro	Leu	Ser	Ala	Val	
93					98					103					108	
tct	gtg	ata	gct	agt	gcc	atc	ata	gga	atc	ata	ttc	atc	aag	gaa	aag	747
Ser	Val	Ile	Ala	Ser	Ala	Ile	Ile	Gly	Ile	Ile	Phe	Ile	Lys	Glu	Lys	
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Trp	Lys	Pro	Lys	Asp	Phe	Leu	Arg	Arg	Tyr	Val	Leu	Ser	Phe	Val	Gly	
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Cys	Gly	Leu	Ala	Val	Val	Gly	Thr	Tyr	Leu	Leu	Val	Thr	Phe	Ala	Pro	
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Asn	Ser	His	Glu	Lys	Met	Thr	Gly	Glu	Asn	Val	Thr	Arg	His	Leu	Val	
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Ser	Trp	Pro	Phe	Leu	Leu	Tyr	Met	Leu	Val	Glu	Ile	Ile	Leu	Phe	Cys	
173					178					183					188	
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Leu	Leu	Leu	Tyr	Phe	Tyr	Lys	Glu	Lys	Asn	Ala	Asn	Asn	Ile	Val	Val	
189					194					199					204	
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Ile	Leu	Leu	Leu	Val	Ala	Leu	Leu	Gly	Ser	Met	Thr	Val	Val	Thr	Val	
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aag	gcc	gtg	gct	ggg	atg	ctt	gtc	ttg	tcc	att	caa	ggg	aac	ctg	cag	1083
Lys	Ala	Val	Ala	Gly	Met	Leu	Val	Leu	Ser	Ile	Gln	Gly	Asn	Leu	Gln	
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Ala	Val	Tyr	Gln	Ala	Ala	Phe	Leu	Ser	Gln	Ala	Ser	Gln	Met	Tyr	Asp	
253					258					263					268	
tcc	tct	ttg	att	gcc	agt	gtg	ggc	tac	att	ctg	tcc	aca	acc	att	gct	1227
Ser	Ser	Leu	Ile	Ala	Ser	Val	Gly	Tyr	Ile	Leu	Ser	Thr	Thr	Ile	Ala	

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Val Phe Leu Ile Thr	Arg Asn Arg Lys Lys	Pro Ile Pro Phe Glu	Pro	
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Tyr Ile Ser Met Asp	Ala Met Pro Gly Met	Gln Asn Met His Asp	Lys	
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Gly Met Thr Val Gln	Pro Glu Leu Lys Ala	Ser Phe Ser Tyr Gly	Ala	
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Tyr Arg Val Leu Glu	His Thr Lys Lys Glu	*		
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Arg Ala Cys Tyr Leu Ser Ile Asn Pro Gln Lys Asp Glu Thr Leu Glu				
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 Asp Asn Gly Leu Lys Ile His Pro Cys Ser Cys Lys Arg His Asp Leu  
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 97 102 107 112

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    Met Arg Thr Ser Leu Gly Pro Asn Gly Leu Asp Lys Met Met Val Asp
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      80             85             90             95

    aag tct cag gat gat gaa att gga gat gga acc aca gga gtg gtt gtc      695
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      96             101            106            111

    ctg gct ggt gcc ttg tta gaa gaa gog gag caa ttg cta gac cga ggc      743
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    gct att gaa cac ctg gac aag atc agc gat agc gtc ctt gtt gac ata      839
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320	325	330	335	
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Ala Thr Gly Gly Arg Ile Val Pro Arg Phe Ser Glu Leu Thr Ala Glu				
336	341	346	351	
aag ctg ggc ttt gct ggt ctt gta cag gag atc tca ttt ggg aca act				1463
Lys Leu Gly Phe Ala Gly Leu Val Gln Glu Ile Ser Phe Gly Thr Thr				
352	357	362	367	
aag gat aaa atg ctg gtc atc gag cag tgt aag aac tcc aga gct gta				1511
Lys Asp Lys Met Leu Val Ile Glu Gln Cys Lys Asn Ser Arg Ala Val				
368	373	378	383	

acc att ttt att aga gga gga aat aag atg atc att gag gag gcg aaa	1559
Thr Ile Phe Ile Arg Gly Gly Asn Lys Met Ile Ile Glu Glu Ala Lys	
384 389 394 399	
cga tcc ctt cac gat gct ttg tgt gtc atc cgg aac ctc atc cgc gat	1607
Arg Ser Leu His Asp Ala Leu Cys Val Ile Arg Asn Leu Ile Arg Asp	
400 405 410 415	
aat cgt gtg gtg tat gga gga ggg gct gct gag ata tcc tgt gcc ctg	1655
Asn Arg Val Val Tyr Gly Gly Gly Ala Ala Glu Ile Ser Cys Ala Leu	
416 421 426 431	
gca gtt agc caa gag gcg gat aag tgc ccc acc tta gaa cag tat gcc	1703
Ala Val Ser Gln Glu Ala Asp Lys Cys Pro Thr Leu Glu Gln Tyr Ala	
432 437 442 447	
atg aga gcg ttt gcc gac gca ctg gag gtc atc ccc atg gcc ctc tct	1751
Met Arg Ala Phe Ala Asp Ala Leu Glu Val Ile Pro Met Ala Leu Ser	
448 453 458 463	
gaa aac agt ggc atg aat ccc atc cag act atg acc gaa gtc cga gcc	1799
Glu Asn Ser Gly Met Asn Pro Ile Gln Thr Met Thr Glu Val Arg Ala	
464 469 474 479	
aga cag gtg aag gag atg aac cct gct ctt ggc atc gac tgt ttg cac	1847
Arg Gln Val Lys Glu Met Asn Pro Ala Leu Gly Ile Asp Cys Leu His	
480 485 490 495	
aag ggg aca aat gat atg aag caa cag cat gtc ata gaa acc ttg att	1895
Lys Gly Thr Asn Asp Met Lys Gln Gln His Val Ile Glu Thr Leu Ile	
496 501 506 511	
ggc aaa aag caa cag ata tct ctt gca aca caa atg gtt aga atg att	1943
Gly Lys Lys Gln Gln Ile Ser Leu Ala Thr Gln Met Val Arg Met Ile	
512 517 522 527	
ttg aag att gat gac att cgt aag cct gga gaa tct gaa gaa tga aga	1991
Leu Lys Ile Asp Asp Ile Arg Lys Pro Gly Glu Ser Glu Glu *	
528 533 538	
cattgagaaa actatgtagc aagatccact tctgtgatta agtaaattgga tgtctcgtga	2051
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atagctgttt ggtaaccata gtttcacttg ttcaaagctg tgtaatcgtg ggggtaccat	2171
ctcaactgct tttgtattca ttgtattaaa agaattctgtt taaacaacct ttattctctc	2231
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ctgtgaggct cgagagacaa gcagtggaag agttgcgggc tgtttcatct ctggattgta      240
aatctgagcc tccttctggc ccctggaagg ggacagcatc accatggaat gattcctaac      300
cagcataatg ctggagccgg gagccaccaa cctgcagttt tcagaatggc cgtgttggaac      360
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gtgggatcgg ttgccattgt gtgttttgca cgcagctatg atggagactt tgtctttgat      480
gactcagaag ctattgttaa caataaggta acaaggaggg agcgcattct tccaccttct      540
gggtgctgct gagtatcttt ctgggagcag tggcc      atg ctg tgc aaa gag caa      593
                                   Met Leu Cys Lys Glu Gln
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ggg atc act gtg ctg ggt tta aat gcg gta ttt gac atc ttg gtg ata      641
Gly Ile Thr Val Leu Gly Leu Asn Ala Val Phe Asp Ile Leu Val Ile
   7                12                17                22

ggc aaa ttc aat gtt ctg gaa att gtc cag aag gta cta cat aag gac      689
Gly Lys Phe Asn Val Leu Glu Ile Val Gln Lys Val Leu His Lys Asp
  23                28                33                38

aag tca tta gag aat ctc ggc atg ctc agg aac ggg ggc ctc ctc ttc      737
Lys Ser Leu Glu Asn Leu Gly Met Leu Arg Asn Gly Gly Leu Leu Phe
  39                44                49                54

aga atg acc ctg ctc acc tct gga ggg gct ggg atg ctc tac gtg cgc      785
Arg Met Thr Leu Leu Thr Ser Gly Gly Ala Gly Met Leu Tyr Val Arg
  55                60                65                70

tgg agg atc atg ggc acg ggc ccg ccg gcc ttc acc gag gtg gac aac      833
Trp Arg Ile Met Gly Thr Gly Pro Pro Ala Phe Thr Glu Val Asp Asn
  71                76                81                86

ccg gcc tcc ttt gct gac agc atg ctg gtg agg gcc gta aac tac aat      881
Pro Ala Ser Phe Ala Asp Ser Met Leu Val Arg Ala Val Asn Tyr Asn
  87                92                97                102

tac tac tat tca ttg aat gcc tgg ctg ctg ctg tgt ccc tgg tgg ctg      929
Tyr Tyr Tyr Ser Leu Asn Ala Trp Leu Leu Leu Cys Pro Trp Trp Leu

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103	108	113	118	
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Cys Phe Asp Trp Ser Met Gly Cys Ile Pro Leu Ile Lys Ser Ile Ser				
119	124	129	134	
gac tgg agg gta att gca ctt gca gca ctc tgg ttc tgc cta att ggc				1025
Asp Trp Arg Val Ile Ala Leu Ala Ala Leu Trp Phe Cys Leu Ile Gly				
135	140	145	150	
ctg ata tgc caa gcc ctg tgc tct gaa gac ggc cac aag aga agg atc				1073
Leu Ile Cys Gln Ala Leu Cys Ser Glu Asp Gly His Lys Arg Arg Ile				
151	156	161	166	
ctt act ctg ggc ctg gga ttt ctc gtt atc cca ttt ctc ccc gcg agt				1121
Leu Thr Leu Gly Leu Gly Phe Leu Val Ile Pro Phe Leu Pro Ala Ser				
167	172	177	182	
aac ctg ttc ttc cga gtg ggc ttc gtg gtc gca gag cgt gtc ctc tac				1169
Asn Leu Phe Phe Arg Val Gly Phe Val Val Ala Glu Arg Val Leu Tyr				
183	188	193	198	
ctc ccc agc gtt ggg tac tgt gtg ctg ctg act ttt gga ttc gga gcc				1217
Leu Pro Ser Val Gly Tyr Cys Val Leu Leu Thr Phe Gly Phe Gly Ala				
199	204	209	214	
ctg agc aaa cat acc aag aaa aag aaa ctc att gcc gct gtc gtg ctg				1265
Leu Ser Lys His Thr Lys Lys Lys Lys Leu Ile Ala Ala Val Val Leu				
215	220	225	230	
gga atc tta ttc atc aac acg ctg aga tgt gtg ctg cgc agc ggc gag				1313
Gly Ile Leu Phe Ile Asn Thr Leu Arg Cys Val Leu Arg Ser Gly Glu				
231	236	241	246	
tgg cgg agt gag gaa cag ctt ttc aga agt gct ctg tct gtg tgt ccc				1361
Trp Arg Ser Glu Glu Gln Leu Phe Arg Ser Ala Leu Ser Val Cys Pro				
247	252	257	262	
ctc aat gct aag gtt cac tac aac att ggc aaa aac ctg gct gat aaa				1409
Leu Asn Ala Lys Val His Tyr Asn Ile Gly Lys Asn Leu Ala Asp Lys				
263	268	273	278	
ggc aac cag aca gct gcc atc aga tac tac cgg gaa gct gta aga tta				1457
Gly Asn Gln Thr Ala Ala Ile Arg Tyr Tyr Arg Glu Ala Val Arg Leu				
279	284	289	294	
aat ccc aag tat gtt cat gcc atg aat aat ctt gga aat atc tta aaa				1505
Asn Pro Lys Tyr Val His Ala Met Asn Asn Leu Gly Asn Ile Leu Lys				
295	300	305	310	
gaa agg aat gag cta cag gaa gct gag gag ctg ctg tct ttg gct gtt				1553
Glu Arg Asn Glu Leu Gln Glu Ala Glu Glu Leu Leu Ser Leu Ala Val				
311	316	321	326	
caa ata cag cca gac ttt gcc gct gcg tgg atg aat cta ggc ata gtg				1601
Gln Ile Gln Pro Asp Phe Ala Ala Ala Trp Met Asn Leu Gly Ile Val				
327	332	337	342	

cag aat agc ctg aaa cgg ttt gaa gca gca gag caa agt tac cgg aca	1649
Gln Asn Ser Leu Lys Arg Phe Glu Ala Ala Glu Gln Ser Tyr Arg Thr	
343 348 353 358	
gca att aaa cac aga agg aaa tac cca gac tgt tac tac aac ctc ggg	1697
Ala Ile Lys His Arg Arg Lys Tyr Pro Asp Cys Tyr Tyr Asn Leu Gly	
359 364 369 374	
cgt ctg tat gca gat ctc aat cgc cac gtg gat gcc ttg aat gcg tgg	1745
Arg Leu Tyr Ala Asp Leu Asn Arg His Val Asp Ala Leu Asn Ala Trp	
375 380 385 390	
aga aat gcc acc gtg ctg aaa cca gag cac agc ctg gcc tgg aac aac	1793
Arg Asn Ala Thr Val Leu Lys Pro Glu His Ser Leu Ala Trp Asn Asn	
391 396 401 406	
atg att ata ctc ctc gac aat aca ggt aat tta gcc caa gct gaa gca	1841
Met Ile Ile Leu Leu Asp Asn Thr Gly Asn Leu Ala Gln Ala Glu Ala	
407 412 417 422	
gtt gga aga gag gca ctg gaa tta ata cct aat gat cac tct ctc atg	1889
Val Gly Arg Glu Ala Leu Glu Leu Ile Pro Asn Asp His Ser Leu Met	
423 428 433 438	
ttc tcg ttg gca aac gtg ctg ggg aaa tcc cag aaa tac aag gaa tct	1937
Phe Ser Leu Ala Asn Val Leu Gly Lys Ser Gln Lys Tyr Lys Glu Ser	
439 444 449 454	
gaa gct tta ttc ctc aag gca att aaa gca aat cca aat gct gca agt	1985
Glu Ala Leu Phe Leu Lys Ala Ile Lys Ala Asn Pro Asn Ala Ala Ser	
455 460 465 470	
tac cat ggt aat ttg gct gtg ctt tat cat cgt tgg gga cat cta gac	2033
Tyr His Gly Asn Leu Ala Val Leu Tyr His Arg Trp Gly His Leu Asp	
471 476 481 486	
ttg gcc aag aaa cac tat gaa atc tcc ttg cag ctt gac ccc acg gca	2081
Leu Ala Lys Lys His Tyr Glu Ile Ser Leu Gln Leu Asp Pro Thr Ala	
487 492 497 502	
tca gga act aag gag aat tac ggt ctg ctg aga aga aag cta gaa cta	2129
Ser Gly Thr Lys Glu Asn Tyr Gly Leu Leu Arg Arg Lys Leu Glu Leu	
503 508 513 518	
atg caa aag aaa gct gtc tga tc ctgtttcctt catgttttga gtttgagtgt	2182
Met Gln Lys Lys Ala Val *	
519 524	
gtgtgtgcat gaggcataatc attaatagta tgtggttaca ttaaccatt taaaagtctt	2242
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accagcaata tactcttgaa tgcgtgatat gatttttcat tgaaattgta ttttttcaga	2362
caactcaaat gtaattctaa aattccaaaa atgtcttttt taattaaaca gaaaaagaga	2422

aaaaattatc ttgagcaact tttagtagaa ttgagcttac atttgggatc tgagccttgt 2482  
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Met Met Phe Gln Asp Ser  
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gtg gcc ttt gag gat gtg gct gtc agc ttc acc cag gag gag tgg gct 403  
Val Ala Phe Glu Asp Val Ala Val Ser Phe Thr Gln Glu Glu Trp Ala  
7 12 17 22  
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Leu Leu Asp Pro Ser Gln Lys Asn Leu Tyr Arg Asp Val Met Gln Glu  
23 28 33 38  
acc ttc aag aac ctg acc tct gta gga aaa aca tgg aaa gtt cag aac 499  
Thr Phe Lys Asn Leu Thr Ser Val Gly Lys Thr Trp Lys Val Gln Asn  
39 44 49 54  
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Ile Glu Asp Glu Tyr Lys Asn Pro Arg Arg Asn Leu Ser Leu Met Arg  
55 60 65 70  
gag aaa ctc tgt gaa agt aaa gaa agt cat cac tgt gga gaa agc ttc 595  
Glu Lys Leu Cys Glu Ser Lys Glu Ser His His Cys Gly Glu Ser Phe  
71 76 81 86  
aac cag att gca gat gac atg ctg aac agg aaa act ctt oct gga ata 643  
Asn Gln Ile Ala Asp Asp Met Leu Asn Arg Lys Thr Leu Pro Gly Ile  
87 92 97 102  
aca cca tgt gaa agc agt gtg tgt gga gaa gtt ggc acg ggt cat tca 691  
Thr Pro Cys Glu Ser Ser Val Cys Gly Glu Val Gly Thr Gly His Ser

103	108	113	118	
tct ctt aat acg cat	atc aga gct gac act	gga cac aag tca tct gag		739
Ser Leu Asn Thr His	Ile Arg Ala Asp Thr	Gly His Lys Ser Ser Glu		
119	124	129	134	
tat cag gaa tat gga	gag aat cca tat aga	aat aag gaa tgt aag aaa		787
Tyr Gln Glu Tyr Gly	Glu Asn Pro Tyr Arg	Asn Lys Glu Cys Lys Lys		
135	140	145	150	
gcc ttc agt tat ctt	gac tcc ttt caa tca	cat gat aaa gct tgc act		835
Ala Phe Ser Tyr Leu	Asp Ser Phe Gln Ser	His Asp Lys Ala Cys Thr		
151	156	161	166	
aaa gag aaa ccc tat	gat ggt aaa gaa tgt	aca gaa acc ttc att tcc		883
Lys Glu Lys Pro Tyr	Asp Gly Lys Glu Cys	Thr Glu Thr Phe Ile Ser		
167	172	177	182	
cat tca tgc att caa	aga cac agg gta atg	cac agt gga gat gga cct		931
His Ser Cys Ile Gln	Arg His Arg Val Met	His Ser Gly Asp Gly Pro		
183	188	193	198	
tat aaa tgt aag ttt	tgt ggg aaa gcc ttc	tat ttt ctc aat tta tgt		979
Tyr Lys Cys Lys Phe	Cys Gly Lys Ala Phe	Tyr Phe Leu Asn Leu Cys		
199	204	209	214	
ctt atc cat gaa cga	att cac act ggt gtg	aaa cca tat aag tgt aaa		1027
Leu Ile His Glu Arg	Ile His Thr Gly Val	Lys Pro Tyr Lys Cys Lys		
215	220	225	230	
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Gln Cys Gly Lys Ala	Phe Thr Arg Ser Thr	Thr Leu Pro Val His Glu		
231	236	241	246	
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Arg Thr His Thr Gly	Val Asn Ala Asp Glu	Cys Lys Glu Cys Gly Asn		
247	252	257	262	
gca ttc agt ttt cct	agt gaa att cgt aga	cat aaa agg tct cac act		1171
Ala Phe Ser Phe Pro	Ser Glu Ile Arg Arg	His Lys Arg Ser His Thr		
263	268	273	278	
gga gaa aaa ccc tat	gag tgt aag caa tgt	ggg aaa gtc ttc att tct		1219
Gly Glu Lys Pro Tyr	Glu Cys Lys Gln Cys	Gly Lys Val Phe Ile Ser		
279	284	289	294	
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Phe Ser Ser Ile Gln	Tyr His Lys Met Thr	His Thr Gly Glu Lys Pro		
295	300	305	310	
tat gaa tgt aag cag	tgt ggg aaa gcc ttt	aga tgt ggc tca cac ctt		1315
Tyr Glu Cys Lys Gln	Cys Gly Lys Ala Phe	Arg Cys Gly Ser His Leu		
311	316	321	326	
caa aag cat gga agg	act cac act gga gag	aaa ccc tat gaa tgt agg		1363
Gln Lys His Gly Arg	Thr His Thr Gly Glu	Lys Pro Tyr Glu Cys Arg		
327	332	337	342	



caa tgt ggt aaa gcc ttc aga tgt acc tcg gac ctt caa agg cat gaa	1411
Gln Cys Gly Lys Ala Phe Arg Cys Thr Ser Asp Leu Gln Arg His Glu	
343 348 353 358	
aag aca cac act gag gat aaa ccc tat gga tgt aag cag tgt ggg aaa	1459
Lys Thr His Thr Glu Asp Lys Pro Tyr Gly Cys Lys Gln Cys Gly Lys	
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Gly Phe Arg Cys Ala Ser Gln Leu Gln Ile His Glu Arg Thr His Ser	
375 380 385 390	
gga gag aaa ccc cat gaa tgt aag gaa tgt gga aaa gta ttc aag tat	1555
Gly Glu Lys Pro His Glu Cys Lys Glu Cys Gly Lys Val Phe Lys Tyr	
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Phe Ser Ser Leu Arg Ile His Glu Arg Thr His Thr Gly Glu Lys Pro	
407 412 417 422	
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423 428 433 438	
cat ata cat gaa agg aca cac act gga gat aag cca tat gag tgt aag	1699
His Ile His Glu Arg Thr His Thr Gly Asp Lys Pro Tyr Glu Cys Lys	
439 444 449 454	
gta tgt ggc aaa gcc ttc act tgt tcc agt tcc att cga tat cat gaa	1747
Val Cys Gly Lys Ala Phe Thr Cys Ser Ser Ser Ile Arg Tyr His Glu	
455 460 465 470	
agg act cac act gga gag aaa ccc tat gaa tgt aag cac tgt ggt aag	1795
Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Lys His Cys Gly Lys	
471 476 481 486	
gcc ttt att tcc aat tac att cga tat cat gaa agg act cac act gga	1843
Ala Phe Ile Ser Asn Tyr Ile Arg Tyr His Glu Arg Thr His Thr Gly	
487 492 497 502	
gag aaa ccc tat caa tgc aag caa tgt ggc aaa gcc ttt att cgt gcc	1891
Glu Lys Pro Tyr Gln Cys Lys Gln Cys Gly Lys Ala Phe Ile Arg Ala	
503 508 513 518	
agt tca tgt cga gaa cat gaa aga act cat acc att aat aga tga gaa	1939
Ser Ser Cys Arg Glu His Glu Arg Thr His Thr Ile Asn Arg *	
519 524 529	
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gaaaagagag tgggtgaaaga acctctggat aactgctttt tgaattgaga agagagactt	2059
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                   Met Ala Val Phe His Asp Glu Val Glu Ile Glu Asp Phe  
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 caa tat gac gag gac tcg gag acg tat ttc tat ccc tgc cca tgt gga 157  
 Gln Tyr Asp Glu Asp Ser Glu Thr Tyr Phe Tyr Pro Cys Pro Cys Gly  
   14                  19                  24                  29  
 gat aac ttc tcc atc acc aag gaa gat ttg gag aat ggg gaa gac gtg 205  
 Asp Asn Phe Ser Ile Thr Lys Glu Asp Leu Glu Asn Gly Glu Asp Val  
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 gca acg tgt cct agc tgc tct ctc att ata aaa gtg att tat gac aaa 253  
 Ala Thr Cys Pro Ser Cys Ser Leu Ile Ile Lys Val Ile Tyr Asp Lys  
   46                  51                  56                  61  
 gat cag ttt gtg tgt gga gaa aca gtc cca gcc cct tca gcc aac aaa 301  
 Asp Gln Phe Val Cys Gly Glu Thr Val Pro Ala Pro Ser Ala Asn Lys  
   62                  67                  72                  77  
 gaa tta gtt aaa tgc tga agaagc cttcaggaat ccaaatactg aacatttga 355  
 Glu Leu Val Lys Cys \*  
   78                  83  
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 Met Gln Glu Thr Phe Lys Asn  
 1 5  
 ctg acc tct gta ggt tgt tgt cgg gat acc aga ttt cct act ccg aga 162  
 Leu Thr Ser Val Gly Cys Cys Arg Asp Thr Arg Phe Pro Thr Pro Arg  
 8 13 18 23  
 gcc ccc ggg tcc ctc tgc cac aac ttc tgt cgc tct gcc gcc tgc acc 210  
 Gly Pro Gly Ser Leu Cys His Asn Phe Cys Arg Ser Ala Ala Cys Thr  
 24 29 34 39  
 gtg acc cgc act att cac ggg agc cct aga gag gac acc ggg aca ccc 258  
 Val Thr Arg Thr Ile His Gly Ser Pro Arg Glu Asp Thr Gly Thr Pro  
 40 45 50 55  
 aga agc cgg gaa atg atg ttt cag gat tca gtg gcc ttt gag gat gtg 306  
 Arg Ser Arg Glu Met Met Phe Gln Asp Ser Val Ala Phe Glu Asp Val  
 56 61 66 71  
 gct gtc agc ttc acc cag gag gag tgg gct ttg ctg gat cct tcc cag 354  
 Ala Val Ser Phe Thr Gln Glu Glu Trp Ala Leu Leu Asp Pro Ser Gln  
 72 77 82 87  
 aag aat ctc tac agg gat gtg atg cag gaa acc ttc aag aac ctg acc 402  
 Lys Asn Leu Tyr Arg Asp Val Met Gln Glu Thr Phe Lys Asn Leu Thr  
 88 93 98 103  
 tct gta gga aaa aca tgg aaa gtt cag aac att gaa gat gag tac aaa 450  
 Ser Val Gly Lys Thr Trp Lys Val Gln Asn Ile Glu Asp Glu Tyr Lys  
 104 109 114 119  
 aat ccc agg aga aat cta agt ctt atg aga gag aaa ctc tgt gaa agt 498  
 Asn Pro Arg Arg Asn Leu Ser Leu Met Arg Glu Lys Leu Cys Glu Ser  
 120 125 130 135  
 aaa gaa agt cat cac tgt gga gaa agc ttc aac cag att gca gat gac 546  
 Lys Glu Ser His His Cys Gly Glu Ser Phe Asn Gln Ile Ala Asp Asp

136	141	146	151	
atg ctg aac agg aaa act ctt cct gga ata aca cca tgt gaa agc agt				594
Met Leu Asn Arg Lys Thr Leu Pro Gly Ile Thr Pro Cys Glu Ser Ser				
152	157	162	167	
gtg tgt gga gaa gtt ggc acg ggt cat tca tct ctt aat acg cat atc				642
Val Cys Gly Glu Val Gly Thr Gly His Ser Ser Leu Asn Thr His Ile				
168	173	178	183	
aga gct gac act gga cac aag tca tct gag tat cag gaa tat gga gag				690
Arg Ala Asp Thr Gly His Lys Ser Ser Glu Tyr Gln Glu Tyr Gly Glu				
184	189	194	199	
aat cca tat aga aat aag gaa tgt aag aaa gcc ttc agt tat ctt gac				738
Asn Pro Tyr Arg Asn Lys Glu Cys Lys Lys Ala Phe Ser Tyr Leu Asp				
200	205	210	215	
tcc ttt caa tca cat gat aaa gct tgc act aaa gag aaa ccc tat gat				786
Ser Phe Gln Ser His Asp Lys Ala Cys Thr Lys Glu Lys Pro Tyr Asp				
216	221	226	231	
ggg aaa gaa tgt aca gaa acc ttc att tcc cat tca tgc att caa aga				834
Gly Lys Glu Cys Thr Glu Thr Phe Ile Ser His Ser Cys Ile Gln Arg				
232	237	242	247	
cac agg gta atg cac agt gga gat gga cct tat aaa tgt aag ttt tgt				882
His Arg Val Met His Ser Gly Asp Gly Pro Tyr Lys Cys Lys Phe Cys				
248	253	258	263	
ggg aaa gcc ttc tat ttt ctc aat tta tgt ctt atc cat gaa cga att				930
Gly Lys Ala Phe Tyr Phe Leu Asn Leu Cys Leu Ile His Glu Arg Ile				
264	269	274	279	
cac act ggt gtg aaa cca tat aag tgt aaa caa tgt ggt aag gcc ttt				978
His Thr Gly Val Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe				
280	285	290	295	
act cgt tcc act acc ctt cca gta cat gaa aga act cac aca gga gtg				1026
Thr Arg Ser Thr Thr Leu Pro Val His Glu Arg Thr His Thr Gly Val				
296	301	306	311	
aat gcc gat gaa tgt aaa gaa tgt ggg aat gca ttc agt ttt cct agt				1074
Asn Ala Asp Glu Cys Lys Glu Cys Gly Asn Ala Phe Ser Phe Pro Ser				
312	317	322	327	
gaa att cgt aga cat aaa agg tct cac act gga gaa aaa ccc tat gag				1122
Glu Ile Arg Arg His Lys Arg Ser His Thr Gly Glu Lys Pro Tyr Glu				
328	333	338	343	
tgt aag caa tgt ggg aaa gtc ttc att tct ttc agt tcc att cag tat				1170
Cys Lys Gln Cys Gly Lys Val Phe Ile Ser Phe Ser Ser Ile Gln Tyr				
344	349	354	359	
cat aag atg act cac act gga gag aaa ccc tat gaa tgt aag cag tgt				1218
His Lys Met Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Gln Cys				
360	365	370	375	

ggg aaa gcc ttt aga tgt ggc tca cac ctt caa aag cat gga agg act	1266
Gly Lys Ala Phe Arg Cys Gly Ser His Leu Gln Lys His Gly Arg Thr	
376 381 386 391	
cac act gga gag aaa ccc tat gaa tgt agg caa tgt ggt aaa gcc ttc	1314
His Thr Gly Glu Lys Pro Tyr Glu Cys Arg Gln Cys Gly Lys Ala Phe	
392 397 402 407	
aga tgt acc tcg gac ctt caa agg cat gaa aag aca cac act gag gat	1362
Arg Cys Thr Ser Asp Leu Gln Arg His Glu Lys Thr His Thr Glu Asp	
408 413 418 423	
aaa ccc tat gga tgt aag cag tgt ggg aaa ggc ttt aga tgt gct tca	1410
Lys Pro Tyr Gly Cys Lys Gln Cys Gly Lys Gly Phe Arg Cys Ala Ser	
424 429 434 439	
caa ctt caa att cat gaa agg acg cac agt gga gag aaa ccc cat gaa	1458
Gln Leu Gln Ile His Glu Arg Thr His Ser Gly Glu Lys Pro His Glu	
440 445 450 455	
tgt aag gaa tgt gga aaa gta ttc aag tat ttt tct tcc ttg cgt ata	1506
Cys Lys Glu Cys Gly Lys Val Phe Lys Tyr Phe Ser Ser Leu Arg Ile	
456 461 466 471	
cat gaa agg acg cac act gga gag aag ccc cat gaa tgt aag caa tgt	1554
His Glu Arg Thr His Thr Gly Glu Lys Pro His Glu Cys Lys Gln Cys	
472 477 482 487	
gga aaa gca ttc agg tat ttc tct tcc ttg cat ata cat gaa agg aca	1602
Gly Lys Ala Phe Arg Tyr Phe Ser Ser Leu His Ile His Glu Arg Thr	
488 493 498 503	
cac act gga gat aag cca tat gag tgt aag gta tgt ggc aaa gcc ttc	1650
His Thr Gly Asp Lys Pro Tyr Glu Cys Lys Val Cys Gly Lys Ala Phe	
504 509 514 519	
act tgt tcc agt tcc att cga tat cat gaa agg act cac act gga gag	1698
Thr Cys Ser Ser Ser Ile Arg Tyr His Glu Arg Thr His Thr Gly Glu	
520 525 530 535	
aaa ccc tat gaa tgt aag cac tgt ggt aag gcc ttt att tcc aat tac	1746
Lys Pro Tyr Glu Cys Lys His Cys Gly Lys Ala Phe Ile Ser Asn Tyr	
536 541 546 551	
att cga tat cat gaa agg act cac act gga gag aaa ccc tat caa tgc	1794
Ile Arg Tyr His Glu Arg Thr His Thr Gly Glu Lys Pro Tyr Gln Cys	
552 557 562 567	
aag caa tgt ggc aaa gcc ttt att cgt gcc agt tca tgt cga gaa cat	1842
Lys Gln Cys Gly Lys Ala Phe Ile Arg Ala Ser Ser Cys Arg Glu His	
568 573 578 583	
gaa aga act cat acc att aat aga tga gaaat ccttttagtg gaagcaacgg	1894
Glu Arg Thr His Thr Ile Asn Arg *	
584 589	

gagaagcttt ctgttgtccc acttcctttg aaacacaaga aaagagagtg gtgaaagaac 1954  
 ctctggataa ctgcttttttg aattgagaag agagacttgc gataggacaa taaaatctag 2014  
 aagaacttgg atggtttcgt aatacaattc acctatagcc aatcttgcag gagatttcaa 2074  
 aggcacagaa aaggaaggca tcagtcacat attagaggcc ccacacaggg agagaggtgt 2134  
 gtggctaccc gcttccagcc cattttcctg attctttggc ttgttaatcg agaatatccc 2194  
 ccaaactact tgtctctgtt cctcagagtt gtaggtctcc agatatgtcc ccagtgtctcc 2254  
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 ccttcttcgc cttctcctcg gctgtggagc cctgggtggg ggtctgcgcc cggtcacc 178  
 atg acg acg ccg gcg aat gcc cag aat gcc agc aaa acg tgg gaa ctg 226  
 Met Thr Thr Pro Ala Asn Ala Gln Asn Ala Ser Lys Thr Trp Glu Leu  
 1 5 10 15  
 agt ctg tat gag ctg cac cgg acc ccg cag gaa gcc ata atg gat ggc 274  
 Ser Leu Tyr Glu Leu His Arg Thr Pro Gln Glu Ala Ile Met Asp Gly  
 17 22 27 32  
 aca gag att gct gtt tcc cct cgg tca ctg cat tca gaa ctc atg tgc 322  
 Thr Glu Ile Ala Val Ser Pro Arg Ser Leu His Ser Glu Leu Met Cys  
 33 38 43 48  
 cct atc tgc ctg gac atg ctg aag aat acg atg acc acc aag gag tgc 370  
 Pro Ile Cys Leu Asp Met Leu Lys Asn Thr Met Thr Thr Lys Glu Cys  
 49 54 59 64  
 ctc cac aga ttc tgc tct gac tgc att gtc aca gcc cta cgg agc ggc 418  
 Leu His Arg Phe Cys Ser Asp Cys Ile Val Thr Ala Leu Arg Ser Gly  
 65 70 75 80  
 aac aag gag tgt cct acc tgc cga aag aag ctg gtg tcc aag cga tcc 466  
 Asn Lys Glu Cys Pro Thr Cys Arg Lys Lys Leu Val Ser Lys Arg Ser  
 81 86 91 96

cta cgg cca gac ccc aac ttt gat gcc ctg atc tct aag atc tat cct	514
Leu Arg Pro Asp Pro Asn Phe Asp Ala Leu Ile Ser Lys Ile Tyr Pro	
97 102 107 112	
agc cgg gag gaa tac gag gcc cat caa gac cga gtg ctt atc cgc ctg	562
Ser Arg Glu Glu Tyr Glu Ala His Gln Asp Arg Val Leu Ile Arg Leu	
113 118 123 128	
agc cgc ctg cac aac cag cag gca ttg agc tcc agc att gag gag ggg	610
Ser Arg Leu His Asn Gln Gln Ala Leu Ser Ser Ser Ile Glu Glu Gly	
129 134 139 144	
cta cgc atg cag gcc atg cac agg gcc cag cgt gtg agg cgg ccg ata	658
Leu Arg Met Gln Ala Met His Arg Ala Gln Arg Val Arg Arg Pro Ile	
145 150 155 160	
cca ggg tca gat cag acc aca acg atg agt ggg ggg gaa gga gag ccc	706
Pro Gly Ser Asp Gln Thr Thr Met Ser Gly Gly Glu Gly Glu Pro	
161 166 171 176	
ggg gag gga gaa ggg gat gga gaa gat gtg agc tca gac tcc gcc cct	754
Gly Glu Gly Glu Gly Asp Gly Glu Asp Val Ser Ser Asp Ser Ala Pro	
177 182 187 192	
gac tct gcc cca ggc cct gct ccc aag cga ccc cgt gga ggg ggc gca	802
Asp Ser Ala Pro Gly Pro Ala Pro Lys Arg Pro Arg Gly Gly Gly Ala	
193 198 203 208	
ggg ggg agc agt gta ggg acg ggg gga ggc ggc act ggt ggg gtg ggt	850
Gly Gly Ser Ser Val Gly Thr Gly Gly Gly Gly Thr Gly Gly Val Gly	
209 214 219 224	
ggg ggt gcc ggt tcg gaa gac tct ggt gac cgg gga ggg act ctg gga	898
Gly Gly Ala Gly Ser Glu Asp Ser Gly Asp Arg Gly Gly Thr Leu Gly	
225 230 235 240	
ggg gga acg ctg ggc ccc cca agc cct cct ggg gcc ccc agc ccc cca	946
Gly Gly Thr Leu Gly Pro Pro Ser Pro Pro Gly Ala Pro Ser Pro Pro	
241 246 251 256	
gag cca ggt gga gaa att gag ctc gtg ttc cgg gcc cac ccc ctg ctc	994
Glu Pro Gly Gly Glu Ile Glu Leu Val Phe Arg Pro His Pro Leu Leu	
257 262 267 272	
gtg gag aag gga gaa tac tgc cag acg agg tat gtg aag aca act ggg	1042
Val Glu Lys Gly Glu Tyr Cys Gln Thr Arg Tyr Val Lys Thr Thr Gly	
273 278 283 288	
aat gcc aca gtg gac cac ctc tcc aag tac ttg gcc ctg cgc att gcc	1090
Asn Ala Thr Val Asp His Leu Ser Lys Tyr Leu Ala Leu Arg Ile Ala	
289 294 299 304	
ctc gag cgg agg caa cag cag gaa gca ggg gag cca gga ggg cct gga	1138
Leu Glu Arg Arg Gln Gln Gln Glu Ala Gly Glu Pro Gly Gly Pro Gly	
305 310 315 320	

ggg ggc gcc tct gac acc gga gga cct gat ggg tgt ggc ggg gag ggt	1186
Gly Gly Ala Ser Asp Thr Gly Gly Pro Asp Gly Cys Gly Gly Glu Gly	
321 326 331 336	
ggg ggt gcc gga gga ggt gac ggt cct gag gag cct gct ttg ccc agc	1234
Gly Gly Ala Gly Gly Gly Asp Gly Pro Glu Glu Pro Ala Leu Pro Ser	
337 342 347 352	
ctg gag ggc gtc agt gaa aag cag tac acc atc tac atc gca cct gga	1282
Leu Glu Gly Val Ser Glu Lys Gln Tyr Thr Ile Tyr Ile Ala Pro Gly	
353 358 363 368	
ggc ggg gcg ttc acg acg ttg aat ggc tcg ctg acc ctg gag ctg gtg	1330
Gly Gly Ala Phe Thr Thr Leu Asn Gly Ser Leu Thr Leu Glu Leu Val	
369 374 379 384	
aat gag aaa ttc tgg aag gtg tcc cgg cca ctg gag ctg tgc tat gct	1378
Asn Glu Lys Phe Trp Lys Val Ser Arg Pro Leu Glu Leu Cys Tyr Ala	
385 390 395 400	
ccc acc aag gat cca aag tga cc ccaccagggg acagccagag gaaggggacc	1431
Pro Thr Lys Asp Pro Lys *	
401 406	
atgggggtatc cctgtgtcct ggtctatcac ccagcttct ttgtcccca gtaccccccag	1491
cccagccagc caataagagg acacaaatga ggacacgtgg cttttataca aagtatctat	1551
atgagatttt tctatattgt acagagtggg gcaaaacacg cccccatttg ctgcottttt	1611
tattgccctg caacgtocca tctatacgag gtgttgagaa aggtgaagaa ccctcccatt	1671
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Met Ser	
1	
acc gcc atg aat ttc ggg acc aag agc ttc cag ccg cgg ccc ccg gac	165
Thr Ala Met Asn Phe Gly Thr Lys Ser Phe Gln Pro Arg Pro Pro Asp	
3 8 13 18	



aag ggc agc ttc ccg ctg gat cac tta ggt gaa tgt aaa agc ttt aaa	213
Lys Gly Ser Phe Pro Leu Asp His Leu Gly Glu Cys Lys Ser Phe Lys	
19 24 29 34	
gag aaa ttc atg aag tgt ctt cat aac aat aat ttt gaa aat gct ttg	261
Glu Lys Phe Met Lys Cys Leu His Asn Asn Asn Phe Glu Asn Ala Leu	
35 40 45 50	
tgc aga aag gaa tca aaa gaa tat tta gaa tgc agg atg gag aga aaa	309
Cys Arg Lys Glu Ser Lys Glu Tyr Leu Glu Cys Arg Met Glu Arg Lys	
51 56 61 66	
ttg atg cta caa gaa cca ttg gag aaa ctg gga ttt gga gac ttg act	357
Leu Met Leu Gln Glu Pro Leu Glu Lys Leu Gly Phe Gly Asp Leu Thr	
67 72 77 82	
agt gga aaa tca gag gca aaa aaa tga atttt gatgagaaga cccctgggcc	409
Ser Gly Lys Ser Glu Ala Lys Lys *	
83 88	
gtgttcagtg gtctctcagg acggagggca tcctcctgcc tcttaggttg gctgaggcct	469
gcgtgtggtg tccttagaaa tgggcttcga atagaagctc cagccctgtg ggggcgtctc	529
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gtgggacggc gttcccggca aagctgggag ggaggcgagc gtggggcaag acccttgtct	649
tcgaggccgg ggcctctctg tatggggcgg ttttatgttg cagtcctctg atactttctg	709
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ttgttccagg tacaagaagc tggaagacct tctggagaag agcttttctc tggatgaag	178
atg ccg tcc ctg cag ccc gtg gtg atg tgc gtc atg aag cac ctg ccc	226
Met Pro Ser Leu Gln Pro Val Val Met Cys Val Met Lys His Leu Pro	
1 5 10 15	
aag gtt ccg gag aaa aaa ctg aag ctg gtt atg gct gac aag gag ctg	274

Lys Val Pro Glu Lys Lys Leu Lys Leu Val Met Ala Asp Lys Glu Leu	
17 22 27 32	
tat cga gcc tgc gcc gtg gag gtg aag cgg cag atc tgg caa gac aac	322
Tyr Arg Ala Cys Ala Val Glu Val Lys Arg Gln Ile Trp Gln Asp Asn	
33 38 43 48	
cag gcc ctc ttc ggg gac gag gtt tcc cca ctc ctg aag cag tac atc	370
Gln Ala Leu Phe Gly Asp Glu Val Ser Pro Leu Leu Lys Gln Tyr Ile	
49 54 59 64	
ctg gag aag gag agc gct ctc ttc agt aca gag ctc tct gtc ctg cac	418
Leu Glu Lys Glu Ser Ala Leu Phe Ser Thr Glu Leu Ser Val Leu His	
65 70 75 80	
aac ttt ttc agt cct tcc ccc aag acc agg cgc cag ggc gag gtg gtg	466
Asn Phe Phe Ser Pro Ser Pro Lys Thr Arg Arg Gln Gly Glu Val Val	
81 86 91 96	
cag cgg ctg acg cgg atg gtg ggg aag aac gtg aag ctg tac gac atg	514
Gln Arg Leu Thr Arg Met Val Gly Lys Asn Val Lys Leu Tyr Asp Met	
97 102 107 112	
gtg ctg cag ttt ctg cgc acg ctc ttc ctg cgc acg cgg aat gtg cac	562
Val Leu Gln Phe Leu Arg Thr Leu Phe Leu Arg Thr Arg Asn Val His	
113 118 123 128	
tac tgc acg ctg cgg gct gag ctg ctc atg tcc ctg cac gac ctg gac	610
Tyr Cys Thr Leu Arg Ala Glu Leu Leu Met Ser Leu His Asp Leu Asp	
129 134 139 144	
gtg ggt gaa atc tgc acc gtg gac ccg tgc cac aag ttc acc tgg tgc	658
Val Gly Glu Ile Cys Thr Val Asp Pro Cys His Lys Phe Thr Trp Cys	
145 150 155 160	
ctg gac gcc tgc atc cga gag cgg ttc gtg gac agc aag agg gcg cgg	706
Leu Asp Ala Cys Ile Arg Glu Arg Phe Val Asp Ser Lys Arg Ala Arg	
161 166 171 176	
gag ctg cag ggg ttt ctc gat ggc gtc aag aag ggc cag gag cag gtg	754
Glu Leu Gln Gly Phe Leu Asp Gly Val Lys Lys Gly Gln Glu Gln Val	
177 182 187 192	
ctg ggg gac ctg tcc atg atc ctg tgt gac ccc ttc gcc atc aac acg	802
Leu Gly Asp Leu Ser Met Ile Leu Cys Asp Pro Phe Ala Ile Asn Thr	
193 198 203 208	
ctg gca ctg agc aca gtc agg cac ctg cag gag ctg gtc ggc cag gag	850
Leu Ala Leu Ser Thr Val Arg His Leu Gln Glu Leu Val Gly Gln Glu	
209 214 219 224	
aca ctg ccc agg gac agc ccc gac ctc ctg ctg ctg ctc cgg ctg ctg	898
Thr Leu Pro Arg Asp Ser Pro Asp Leu Leu Leu Leu Leu Arg Leu Leu	
225 230 235 240	
gcg ctg ggc cag gga gcc tgg gac atg atc gac agc cag gtc ttc aag	946
Ala Leu Gly Gln Gly Ala Trp Asp Met Ile Asp Ser Gln Val Phe Lys	

241	246	251	256	
gag ccc aag atg gag gta gag ctc atc acc agg ttc ctc ccg atg ctc				994
Glu Pro Lys Met Glu Val Glu Leu Ile Thr Arg Phe Leu Pro Met Leu				
257	262	267	272	
atg tcc ttc ctg gtg gat gac tac act ttc aat gtg gat cag aaa ctt				1042
Met Ser Phe Leu Val Asp Asp Tyr Thr Phe Asn Val Asp Gln Lys Leu				
273	278	283	288	
ccg gct gag gag aaa gcc cca gtc tca tat cca aac aca ctt ccc gaa				1090
Pro Ala Glu Glu Lys Ala Pro Val Ser Tyr Pro Asn Thr Leu Pro Glu				
289	294	299	304	
agc ttc act aag ttt ctg cag gag cag cgc atg gcc tgc gag gtg ggg				1138
Ser Phe Thr Lys Phe Leu Gln Glu Gln Arg Met Ala Cys Glu Val Gly				
305	310	315	320	
ctg tac tac gtc ctg cac atc acc aag cag agg aac aag aac gcg ctc				1186
Leu Tyr Tyr Val Leu His Ile Thr Lys Gln Arg Asn Lys Asn Ala Leu				
321	326	331	336	
ctc cgc ctg ctg ccc ggg ctg gtg gag acc ttt ggc gac ttg gcc ttt				1234
Leu Arg Leu Leu Pro Gly Leu Val Glu Thr Phe Gly Asp Leu Ala Phe				
337	342	347	352	
ggc gac atc ttc ctc cac ctg ctc acg ggc aac ctt gcg ctg ctg gcc				1282
Gly Asp Ile Phe Leu His Leu Leu Thr Gly Asn Leu Ala Leu Leu Ala				
353	358	363	368	
gac gaa ttt gcc ctt gag gac ttc tgc agc agc ctc ttc gat ggc ttc				1330
Asp Glu Phe Ala Leu Glu Asp Phe Cys Ser Ser Leu Phe Asp Gly Phe				
369	374	379	384	
ttc ctc acc gcc tct cca agg aag gag aac gtg cac cgg cac gcg ctg				1378
Phe Leu Thr Ala Ser Pro Arg Lys Glu Asn Val His Arg His Ala Leu				
385	390	395	400	
cgg ctc ctc att cac ctg cac ccc agg gtg gcc ccg tct aag ctg gag				1426
Arg Leu Leu Ile His Leu His Pro Arg Val Ala Pro Ser Lys Leu Glu				
401	406	411	416	
gcg ttg cag aag gcc ctg gag cct aca ggc cag agc gga gag gca gtg				1474
Ala Leu Gln Lys Ala Leu Glu Pro Thr Gly Gln Ser Gly Glu Ala Val				
417	422	427	432	
aag gag ctt tac tcc cag ctc ggc gag aag ctg gaa cag ctg gat cac				1522
Lys Glu Leu Tyr Ser Gln Leu Gly Glu Lys Leu Glu Gln Leu Asp His				
433	438	443	448	
cgg aag ccc agc ccg gca cag gct gcg gag acg ccg gcc ctg gag ctg				1570
Arg Lys Pro Ser Pro Ala Gln Ala Ala Glu Thr Pro Ala Leu Glu Leu				
449	454	459	464	
ccc ctc ccc agc gtg ccc gcc cct gcc ccg ctc tga gggc cctccagacc				1620
Pro Leu Pro Ser Val Pro Ala Pro Ala Pro Leu *				
465	470	475		

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 ggctcccagg gcagagcctc tccttgtaact ttggcagcca tagaaagcgt gctcattttc 1860  
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 aactttaccg actgccaccc atgtggaaat gaggcagcct gtaaccagat gtcagccgcc 2460  
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 aa 2522

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 Met Val Ser  
 1  
 tgg atc atc tcc agg ctg gtg gtg ctt ata ttt ggc acc ctt tac cct 165  
 Trp Ile Ile Ser Arg Leu Val Val Leu Ile Phe Gly Thr Leu Tyr Pro  
 4 9 14 19  
 gcg tat tat tcc tac aag gct gtg aaa tca aag gac att aag gaa tat 213

Ala Tyr Tyr Ser Tyr Lys Ala Val Lys Ser Lys Asp Ile Lys Glu Tyr  
20 25 30 35

gtc aaa tgg atg atg tac tgg att ata ttt gca ctt ttc acc aca gca 261  
Val Lys Trp Met Met Tyr Trp Ile Ile Phe Ala Leu Phe Thr Thr Ala  
36 41 46 51

gag aca ttc aca gac atc ttc ctt tgt tgg ttt cca ttc tat tat gaa 309  
Glu Thr Phe Thr Asp Ile Phe Leu Cys Trp Phe Pro Phe Tyr Tyr Glu  
52 57 62 67

cta aaa ata gca ttt gta gcc tgg ctg ctg tct ccc tac aca aaa ggc 357  
Leu Lys Ile Ala Phe Val Ala Trp Leu Leu Ser Pro Tyr Thr Lys Gly  
68 73 78 83

tcc agc ctc ctg tac agg aag ttt gta cat ccc aca cta tct tca aaa 405  
Ser Ser Leu Leu Tyr Arg Lys Phe Val His Pro Thr Leu Ser Ser Lys  
84 89 94 99

gaa aag gaa atc gat gat tgt ctg gtc caa gca aaa gac cga agt tac 453  
Glu Lys Glu Ile Asp Asp Cys Leu Val Gln Ala Lys Asp Arg Ser Tyr  
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 Glu Lys Thr Phe Lys Gln Arg Arg Thr Phe Glu Gln Arg Val Glu Asp  
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 gtc cga ctt att cga gag cag cat cca acc aaa atc ccg gtg ata ata 213  
 Val Arg Leu Ile Arg Glu Gln His Pro Thr Lys Ile Pro Val Ile Ile  
 20 25 30 35  
 gaa cga tac aag ggt gag aag cag ctt cct gtt ctg gat aaa aca aag 261  
 Glu Arg Tyr Lys Gly Glu Lys Gln Leu Pro Val Leu Asp Lys Thr Lys  
 36 41 46 51  
 ttc ctt gta cct gac cat gtc aac atg agt gag ctc atc aag ata att 309  
 Phe Leu Val Pro Asp His Val Asn Met Ser Glu Leu Ile Lys Ile Ile  
 52 57 62 67  
 aga agg cgc tta cag ctc aat gct aat cag gcc ttc ttc ctg ttg gtg 357  
 Arg Arg Arg Leu Gln Leu Asn Ala Asn Gln Ala Phe Phe Leu Leu Val  
 68 73 78 83  
 aac gga cac agc atg gtc agc gtc tcc aca cca atc tca gag gtg tat 405  
 Asn Gly His Ser Met Val Ser Val Ser Thr Pro Ile Ser Glu Val Tyr  
 84 89 94 99  
 gag agt gag aaa gat gaa gat gga ttc ctg tac atg gtc tat gcc tcc 453  
 Glu Ser Glu Lys Asp Glu Asp Gly Phe Leu Tyr Met Val Tyr Ala Ser  
 100 105 110 115  
 cag gag acg ttc ggg atg aaa ttg tca gtg taa aaccagaa aaaatgcac 504  
 Gln Glu Thr Phe Gly Met Lys Leu Ser Val \*  
 116 121 126  
 tcttctagaa ttgtttaaac ccttaccaag gaaaaaaaag ggggtgttacc aactgagatc 564  
 gatcagttca tccaatcaca gatcatgaaa cagtagtggt cccacctagg agtgtttagga 624  
 agttgtgttt gtgtttcaag cagaaaaact gagctccaag tgagcacatt cagctttgga 684  
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ggagccagca cactaaccac gccacgcgcc ctgccgtccc ttgcctcca gccgtgcag      180
tgtgggccct gcaggagctg ggaaaaaccg cagggaggtc ttcaggccga tatgcaagtc    240
tccagccga aggggcaggg gacctgaaca ggggaagcag agcacctggg cctggccaga     300
gctgacacct ggtaggaga ggaaggacca agggacgggg cgttcccagg tgggagcctg     360
gagggcaaag cgtggtgcga gcagcctcgc gggccgccta actgccccgt tccaagggtg    420
ccaccggacc ccgctggaga ggaacttctc cgttggtga tttcatcacc acccattccc     480
gattccacgt ttcctttaag cggggctggc ggagccgcaa ggcggcaagg aactggattg     540
cgattggtca gcacgtgcct cgggtccgcg tacaattggc tgaggcgctg ggccttggga     600
agcattcccc gacgggattg gtcgtcgtc tcgcagagcc cgctcccg agtacaagcg       660
gccccgggt cgggtgggag gaggggactc cgggaggagg aac  atg gcg gtg gcg      715
                                   Met Ala Val Ala
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1

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gac ctc gct ctc att cct gat gtg gac atc gac tcc gac ggc gtc ttc      763
Asp Leu Ala Leu Ile Pro Asp Val Asp Ile Asp Ser Asp Gly Val Phe
  5              10              15              20

aag tat gtg ctg atc cga gtc cac tcg gct ccc cgc tcc ggg gct ccg      811
Lys Tyr Val Leu Ile Arg Val His Ser Ala Pro Arg Ser Gly Ala Pro
  21              26              31              36

gct gca gag agc aag gag atc gtg cgc ggc tac aag tgg gct gag tac      859
Ala Ala Glu Ser Lys Glu Ile Val Arg Gly Tyr Lys Trp Ala Glu Tyr
  37              42              47              52

cat gcg gac atc tac gac aaa gtg tcg ggc gac atg cag aag caa ggc      907
His Ala Asp Ile Tyr Asp Lys Val Ser Gly Asp Met Gln Lys Gln Gly
  53              58              63              68

tgc gac tgt gag tgt ctg ggc ggc ggg cgc atc tcc cac cag agt cag      955
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Cys	Asp	Cys	Glu	Cys	Leu	Gly	Gly	Gly	Arg	Ile	Ser	His	Gln	Ser	Gln	
69					74					79					84	
gac aag aag att cac gtg tac ggc tat tcc atg gcc tat ggt cct gcc																1003
Asp Lys Lys Ile His Val Tyr Gly Tyr Ser Met Ala Tyr Gly Pro Ala																
85					90					95					100	
cag cac gcc att tca act gag aaa atc aaa gcc aag tac ccc gac tac																1051
Gln His Ala Ile Ser Thr Glu Lys Ile Lys Ala Lys Tyr Pro Asp Tyr																
101					106					111					116	
gag gtc acc tgg gct aac gac ggc tac tga g cactcccagc cccggggcct																1102
Glu Val Thr Trp Ala Asn Asp Gly Tyr *																
117					122											
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cggacagggc cgctgtgcg cgggctgctg agaactagcc ctagacctct gcgtgagggc	180
tcttctgccg aagacatcac cagtgtgtgg agcctgccac acccaccgcg tgccaaacca	240
cggcctttac ctgtgtcttc cgggtgtttcc cgtgcgaccc atcctgtggg agtgctctgt	300
gggctgcccc agagttcacc ccacactcag cagcacca	353
atg gtg aag atg aca	
Met Val Lys Met Thr	
1	
aga tcg aag act ttc cag gca tat ctg ccc tcc tgc cac cgg acc tac	401
Arg Ser Lys Thr Phe Gln Ala Tyr Leu Pro Ser Cys His Arg Thr Tyr	
6 11 16 21	
agc tgc att cac tgc aga gct cac ttg gcc aat cat gat gaa cta att	449
Ser Cys Ile His Cys Arg Ala His Leu Ala Asn His Asp Glu Leu Ile	
22 27 32 37	
tcc aag tca ttc caa gga agt caa gga cga gca tac ctc ttt aac tca	497

Ser Lys Ser Phe Gln Gly Ser Gln Gly Arg Ala Tyr Leu Phe Asn Ser  
38 43 48 53

gta gtt aat gtg ggc tgt ggg oct gca gaa gag cga gtg ttg cta aca 545  
Val Val Asn Val Gly Cys Gly Pro Ala Glu Glu Arg Val Leu Leu Thr  
54 59 64 69

gga ctg cat gca gtc gca gac att tac tgt gaa aac tgc aaa acc act 593  
Gly Leu His Ala Val Ala Asp Ile Tyr Cys Glu Asn Cys Lys Thr Thr  
70 75 80 85

ctg ggc tgg aaa tac gaa cat gct ttt gaa agc agc cag aaa tat aaa 641  
Leu Gly Trp Lys Tyr Glu His Ala Phe Glu Ser Ser Gln Lys Tyr Lys  
86 91 96 101

gaa ggc aaa tac atc att gaa cta gca cac atg atc aag gac aat ggc 689  
Glu Gly Lys Tyr Ile Ile Glu Leu Ala His Met Ile Lys Asp Asn Gly  
102 107 112 117

tgg gac tga ttggacagc 707  
Trp Asp \*  
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gcagcgcggc gcggggccac cgacgggacg cggtccggg aac atg gct cgc ttc 115  
Met Ala Arg Phe  
1

gct ctg act gtt gtc cgg cat gga gaa aca aga ttt aac aag gag aaa 163  
Ala Leu Thr Val Val Arg His Gly Glu Thr Arg Phe Asn Lys Glu Lys  
5 10 15 20

ata atc caa gga caa gga gta gat gaa cct ctt tca gaa act gga ttt 211  
Ile Ile Gln Gly Gln Gly Val Asp Glu Pro Leu Ser Glu Thr Gly Phe  
21 26 31 36

aaa caa gca gca gct gct ggt ata ttt ctg aat aat gtg aag ttt act 259  
Lys Gln Ala Ala Ala Gly Ile Phe Leu Asn Asn Val Lys Phe Thr  
37 42 47 52

cat gct ttc tcc agt gat ctc atg agg aca aag cag acc atg cat gga 307  
His Ala Phe Ser Ser Asp Leu Met Arg Thr Lys Gln Thr Met His Gly

53	58	63	68	
att ttg gag aga agc aaa ttt tgc aaa gat atg acg gta aag tat gac				355
Ile Leu Glu Arg Ser Lys Phe Cys Lys Asp Met Thr Val Lys Tyr Asp				
69	74	79	84	
tca aga ctt cgg gaa agg aaa tac ggg gtt gta gaa ggc aaa gcg cta				403
Ser Arg Leu Arg Glu Arg Lys Tyr Gly Val Val Glu Gly Lys Ala Leu				
85	90	95	100	
agt gag ctg agg gcc atg gcc aaa gca gcc agg gaa gag tgc cct gtg				451
Ser Glu Leu Arg Ala Met Ala Lys Ala Ala Arg Glu Glu Cys Pro Val				
101	106	111	116	
ttt aca ccg ccc gga gga gag acg ctg gac cag gtg aaa atg cgt gga				499
Phe Thr Pro Pro Gly Gly Glu Thr Leu Asp Gln Val Lys Met Arg Gly				
117	122	127	132	
ata gac ttt ttt gaa ttt ctt tgt caa cta atc ctg aaa gaa gcg gat				547
Ile Asp Phe Phe Glu Phe Leu Cys Gln Leu Ile Leu Lys Glu Ala Asp				
133	138	143	148	
caa aaa gaa cag ttt tcc caa gga tct cca agc aac tgt ctg gaa act				595
Gln Lys Glu Gln Phe Ser Gln Gly Ser Pro Ser Asn Cys Leu Glu Thr				
149	154	159	164	
tct ttg gca gag ata ttt cct tta gga aaa aat cac agc tct aaa gtt				643
Ser Leu Ala Glu Ile Phe Pro Leu Gly Lys Asn His Ser Ser Lys Val				
165	170	175	180	
aat tca gac agc ggt att cca gga tta gca gcc agt gtc tta gtt gtg				691
Asn Ser Asp Ser Gly Ile Pro Gly Leu Ala Ala Ser Val Leu Val Val				
181	186	191	196	
agt cac ggt gct tac atg aga agt ctg ttt gat tat ttt ctg act gac				739
Ser His Gly Ala Tyr Met Arg Ser Leu Phe Asp Tyr Phe Leu Thr Asp				
197	202	207	212	
ctt aag tgt tcc tta cca gcc act ctg agc aga tct gaa ctt atg tca				787
Leu Lys Cys Ser Leu Pro Ala Thr Leu Ser Arg Ser Glu Leu Met Ser				
213	218	223	228	
gtc act ccc aat aca ggg atg agt ctc ttt atc ata aac ttt gag gaa				835
Val Thr Pro Asn Thr Gly Met Ser Leu Phe Ile Ile Asn Phe Glu Glu				
229	234	239	244	
gga aga gaa gtt aaa cca acg gtt cag tgt att tgt atg aac cta cag				883
Gly Arg Glu Val Lys Pro Thr Val Gln Cys Ile Cys Met Asn Leu Gln				
245	250	255	260	
gat cat cta aat gga ctg act gaa act cgc taa gggttaaatt ctgcatcaaa				934
Asp His Leu Asn Gly Leu Thr Glu Thr Arg *				
261	266	271		
atctaaccat tttgagcctc tgaaggaggat gccattggct ttattttactt ctctcctctg				994
ctagttctga tttggaaaca gttaaaaagcc aattttttagc tccagtggaa ccatagccac				1054

ataaaacttt aatggacaac catatagaat taacttattt tgtccaagta cagttggcat 1114  
 tttccagaat aattttacca cctgtctaga tgtcatctct ggattgcaca tggatgatga 1174  
 aggaactcag cattgaaagt tgggggatta gtaaccttgt tacaacgggt tctttttcat 1234  
 tttagcctat tttaatggct attggtaaga tactgtatgt ttttagtata tcatccagtg 1294  
 cttagaagaa agaatggttt ataattccca gtacatgttt atattgactg tgttatattt 1354  
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 gcc atg aac ttc tcc gag gta ttc aag ctc tcc agc tta ctc tgc aag 168  
 Met Asn Phe Ser Glu Val Phe Lys Leu Ser Ser Leu Leu Cys Lys  
 1 5 10  
 ttc tcc ccg gac ggc aag tac ctg gct tcc tgt gtc cag tac cgg tta 216  
 Phe Ser Pro Asp Gly Lys Tyr Leu Ala Ser Cys Val Gln Tyr Arg Leu  
 16 21 26 31  
 gtg gtc cgg gat gtg aac acc ctt cag atc ctt cag ctg tac acg tgc 264  
 Val Val Arg Asp Val Asn Thr Leu Gln Ile Leu Gln Leu Tyr Thr Cys  
 32 37 42 47  
 cta gac cag atc cag cac atc gag tgg tcg gca gac tcg ctc ttc atc 312  
 Leu Asp Gln Ile Gln His Ile Glu Trp Ser Ala Asp Ser Leu Phe Ile  
 48 53 58 63  
 ctg tgc gcc atg tac aag cga ggg ctg gtg cag gtc tgg tct tta gag 360  
 Leu Cys Ala Met Tyr Lys Arg Gly Leu Val Gln Val Trp Ser Leu Glu  
 64 69 74 79  
 cag ccc gaa tgg cac tgc aaa ata gac gag ggc tca gcc ggg ctg gtg 408  
 Gln Pro Glu Trp His Cys Lys Ile Asp Glu Gly Ser Ala Gly Leu Val  
 80 85 90 95  
 gcc tcg tgc tgg agc ccg gac ggg cgc cac att ctc aac acc acg gaa 456  
 Ala Ser Cys Trp Ser Pro Asp Gly Arg His Ile Leu Asn Thr Thr Glu  
 96 101 106 111

ttc cat ctg cgg ata acc gtc tgg tcc ttg tgc aca aaa tcc gtg tct	504
Phe His Leu Arg Ile Thr Val Trp Ser Leu Cys Thr Lys Ser Val Ser	
112 117 122 127	
tac atc aaa tac ccg aaa gct tgt ctg cag gga atc acc ttc acc agg	552
Tyr Ile Lys Tyr Pro Lys Ala Cys Leu Gln Gly Ile Thr Phe Thr Arg	
128 133 138 143	
gac ggc cgc tac atg gcg ctg gca gaa cgg cgc gac tgc aaa gat tac	600
Asp Gly Arg Tyr Met Ala Leu Ala Glu Arg Asp Cys Lys Asp Tyr	
144 149 154 159	
gtg agc atc ttc gtc tgc agt gat tgg cag ctc ctg cgg cat ttt gat	648
Val Ser Ile Phe Val Cys Ser Asp Trp Gln Leu Leu Arg His Phe Asp	
160 165 170 175	
acg gac acc cag gat ctc aca ggg att gag tgg gcc cca aac ggc tgt	696
Thr Asp Thr Gln Asp Leu Thr Gly Ile Glu Trp Ala Pro Asn Gly Cys	
176 181 186 191	
gtg ctg gca gtg tgg gac acc tgc ttg gag tac aag att ctg ctg tac	744
Val Leu Ala Val Trp Asp Thr Cys Leu Glu Tyr Lys Ile Leu Leu Tyr	
192 197 202 207	
tca ttg gat ggc cgg ttg ttg tcc acg tac agc gct tac gag tgg tcc	792
Ser Leu Asp Gly Arg Leu Leu Ser Thr Tyr Ser Ala Tyr Glu Trp Ser	
208 213 218 223	
ctg ggc atc aag tct gtg gcc tgg agc ccc agc agt cag ttc ctg gca	840
Leu Gly Ile Lys Ser Val Ala Trp Ser Pro Ser Ser Gln Phe Leu Ala	
224 229 234 239	
gtt ggg agc tat gat gga aag gtg cgc atc ctt aat cac gtg act tgg	888
Val Gly Ser Tyr Asp Gly Lys Val Arg Ile Leu Asn His Val Thr Trp	
240 245 250 255	
aaa atg atc acg gag ttt ggg cat cct gca gcc att aat gat ccc aag	936
Lys Met Ile Thr Glu Phe Gly His Pro Ala Ala Ile Asn Asp Pro Lys	
256 261 266 271	
ata gtg gtg tat aag gag gcc gag aag agc cca cag ctg gga ctg ggc	984
Ile Val Val Tyr Lys Glu Ala Glu Lys Ser Pro Gln Leu Gly Leu Gly	
272 277 282 287	
tgc ctc tcc ttc ccg ccg ccc cgg gcc ggg gcc ggc cct ctc ccg agc	1032
Cys Leu Ser Phe Pro Pro Pro Arg Ala Gly Ala Gly Pro Leu Pro Ser	
288 293 298 303	
tca gag agt aaa tat gag atc gcc tct gtc cca gtc tcc tta cag aca	1080
Ser Glu Ser Lys Tyr Glu Ile Ala Ser Val Pro Val Ser Leu Gln Thr	
304 309 314 319	
ctg aaa cct gtt acc gac aga gca aac ccg aaa atc ggc ata gga atg	1128
Leu Lys Pro Val Thr Asp Arg Ala Asn Pro Lys Ile Gly Ile Gly Met	
320 325 330 335	

ctg gca ttt agt cct gac agc tac ttc ctg gcg aca agg aac gac aac	1176
Leu Ala Phe Ser Pro Asp Ser Tyr Phe Leu Ala Thr Arg Asn Asp Asn	
336 341 346 351	
att ccc aat gcc gtc tgg gtc tgg gac att cag aag ctg agg ctg ttc	1224
Ile Pro Asn Ala Val Trp Val Trp Asp Ile Gln Lys Leu Arg Leu Phe	
352 357 362 367	
gcg gtg ctc gag cag ctg tcc cca gtg cgc gcg ttt cag tgg gac ccg	1272
Ala Val Leu Glu Gln Leu Ser Pro Val Arg Ala Phe Gln Trp Asp Pro	
368 373 378 383	
cag cag ccg cgg ctg gcc atc tgc acg gga ggc agc agg ctc tac ctg	1320
Gln Gln Pro Arg Leu Ala Ile Cys Thr Gly Gly Ser Arg Leu Tyr Leu	
384 389 394 399	
tgg tcc cca gcg ggc tgc atg tgc gtg cag gtg cct ggg gaa ggc gac	1368
Trp Ser Pro Ala Gly Cys Met Ser Val Gln Val Pro Gly Glu Gly Asp	
400 405 410 415	
ttt gca gtg ctc tct ctg tgc tgg cat tta agc gga gac tcg atg gcc	1416
Phe Ala Val Leu Ser Leu Cys Trp His Leu Ser Gly Asp Ser Met Ala	
416 421 426 431	
ctc ctc agc aag gat cac ttc tgc ctc tgc ttc ctg gag aca gag gca	1464
Leu Leu Ser Lys Asp His Phe Cys Leu Cys Phe Leu Glu Thr Glu Ala	
432 437 442 447	
gtg gtc ggc aca gcc tgc aga cag ctg ggc ggc cac acg tag cagcggc	1513
Val Val Gly Thr Ala Cys Arg Gln Leu Gly Gly His Thr *	
448 453 458	
gcactaacgt gtgcagaaac agggctactc tgtgtttcca gtgtgggaaa aaacacagct	1573
tcaccaggag gttctccact gtggtggtct ggattcagtg attgattcta tttttctata	1633
gcaaagcatt tttgtaaata tgtatggtat aaaactgtag ttttattatt taaaataaat	1693
acttgctgat ttataaaaaa aaaaaaaaaa aacgaaggcg gccgcaagct ta	1745

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<211> 1748

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (187) .. (1467)

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acagaagacg tactggccgc tggactccgc tgccctcccc atctccccgc catctgcgcc	180
cggagg atg agc cca gcc ttc agg gcc atg gat gtg gag ccc cgc gcc	228
Met Ser Pro Ala Phe Arg Ala Met Asp Val Glu Pro Arg Ala	
1 5 10	
aaa ggc gtc ctt ctg gag ccc ttt gtc cac cag gtc ggg ggg cac tca	276
Lys Gly Val Leu Leu Glu Pro Phe Val His Gln Val Gly Gly His Ser	
15 20 25 30	
tgc gtg ctc cgc ttc aat gag aca acc ctg tgc aag ccc ctg gtc cca	324
Cys Val Leu Arg Phe Asn Glu Thr Thr Leu Cys Lys Pro Leu Val Pro	
31 36 41 46	
agg gaa cat cag ttc tac gag acc ctc cct gct gag atg cgc aaa ttc	372
Arg Glu His Gln Phe Tyr Glu Thr Leu Pro Ala Glu Met Arg Lys Phe	
47 52 57 62	
act ccc cag tac aaa ggt gtg gta tct gtg cgc ttt gaa gaa gat gaa	420
Thr Pro Gln Tyr Lys Gly Val Val Ser Val Arg Phe Glu Glu Asp Glu	
63 68 73 78	
gac agg aac ttg tgt cta ata gca tat cca ttg aaa ggg gac cat gga	468
Asp Arg Asn Leu Cys Leu Ile Ala Tyr Pro Leu Lys Gly Asp His Gly	
79 84 89 94	
att gtg gac att gta gat aat tca gac tgt gaa cca aaa agt aag ctc	516
Ile Val Asp Ile Val Asp Asn Ser Asp Cys Glu Pro Lys Ser Lys Leu	
95 100 105 110	
cta agg tgg aca aca aac aaa aaa cat cat gtc tta gaa aca gaa aag	564
Leu Arg Trp Thr Thr Asn Lys Lys His His Val Leu Glu Thr Glu Lys	
111 116 121 126	
acc cct aag gac tgg gtg cgt cag cac cgt aaa gag gag aaa atg aag	612
Thr Pro Lys Asp Trp Val Arg Gln His Arg Lys Glu Glu Lys Met Lys	
127 132 137 142	
agc cat aag tta gaa gaa gaa ttt gag tgg cta aag aaa tct gaa gtc	660
Ser His Lys Leu Glu Glu Glu Phe Glu Trp Leu Lys Lys Ser Glu Val	
143 148 153 158	
ttg tac tac act gta gag aag aag ggg aat ata agt tcc cag ctt aaa	708
Leu Tyr Tyr Thr Val Glu Lys Lys Gly Asn Ile Ser Ser Gln Leu Lys	
159 164 169 174	
cac tat aac cct tgg agc atg aaa tgt cac cag caa cag tta cag aga	756
His Tyr Asn Pro Trp Ser Met Lys Cys His Gln Gln Gln Leu Gln Arg	
175 180 185 190	
atg aag gag aat gca aag cat cgg aac cag tac aaa ttt atc tta ctg	804
Met Lys Glu Asn Ala Lys His Arg Asn Gln Tyr Lys Phe Ile Leu Leu	
191 196 201 206	
gaa aac ctg act tcc cgc tat gag gtg cct tgt gtc ctt gac ctc aag	852
Glu Asn Leu Thr Ser Arg Tyr Glu Val Pro Cys Val Leu Asp Leu Lys	
207 212 217 222	

atg ggc aca cga caa cat ggt gat gat gct tca gag gag aag gca gcc	900
Met Gly Thr Arg Gln His Gly Asp Asp Ala Ser Glu Glu Lys Ala Ala	
223 228 233 238	
aac cag atc cga aaa tgt cag cag agc aca tct gca gtc att ggt gtg	948
Asn Gln Ile Arg Lys Cys Gln Gln Ser Thr Ser Ala Val Ile Gly Val	
239 244 249 254	
cgt gtg tgt ggc atg cag gtg tac caa gca ggc agt ggg cag ctc atg	996
Arg Val Cys Gly Met Gln Val Tyr Gln Ala Gly Ser Gly Gln Leu Met	
255 260 265 270	
ttc atg aac aag tac cat gga cgg aag cta tgg gtg cag ggc ttc aag	1044
Phe Met Asn Lys Tyr His Gly Arg Lys Leu Ser Val Gln Gly Phe Lys	
271 276 281 286	
gag gca ctt ttc cag ttc ttc cac aat ggg cgg tac ctg cgc cgt gaa	1092
Glu Ala Leu Phe Gln Phe Phe His Asn Gly Arg Tyr Leu Arg Arg Glu	
287 292 297 302	
ctc ctg ggc cct gtg ctc aag aag ctg act gag ctc aag gca gtg ttg	1140
Leu Leu Gly Pro Val Leu Lys Lys Leu Thr Glu Leu Lys Ala Val Leu	
303 308 313 318	
gag cga cag gag tcc tac cgc ttc tac tca agc tcc ctg ctg gtc att	1188
Glu Arg Gln Glu Ser Tyr Arg Phe Tyr Ser Ser Ser Leu Leu Val Ile	
319 324 329 334	
tat gat ggc aag gag cgg ccc gaa gtg gtc ctg gac tca gat gct gag	1236
Tyr Asp Gly Lys Glu Arg Pro Glu Val Val Leu Asp Ser Asp Ala Glu	
335 340 345 350	
gat ttg gag gac ctg tca gag gaa tca gct gat gag tct gct ggt gcc	1284
Asp Leu Glu Asp Leu Ser Glu Glu Ser Ala Asp Glu Ser Ala Gly Ala	
351 356 361 366	
tat gcc tac aaa ccc atc ggc gcc agc tct gta gat gtg cgc atg atc	1332
Tyr Ala Tyr Lys Pro Ile Gly Ala Ser Ser Val Asp Val Arg Met Ile	
367 372 377 382	
gac ttt gca cac acc acc tgc agg ctg tat ggc gag gac acc gtg gtg	1380
Asp Phe Ala His Thr Thr Cys Arg Leu Tyr Gly Glu Asp Thr Val Val	
383 388 393 398	
cat gag ggc cag gat gct ggc tat atc ttc ggg ctc cag agc ctg ata	1428
His Glu Gly Gln Asp Ala Gly Tyr Ile Phe Gly Leu Gln Ser Leu Ile	
399 404 409 414	
gac att gtc aca gag ata agt gag gag agt ggg gag tga gcttgctagc	1477
Asp Ile Val Thr Glu Ile Ser Glu Glu Ser Gly Glu *	
415 420 425	
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Met  
1  
ccc tcg gcc aaa caa agg ggc tcc aag ggc ggc cac ggc gcc gcg agc 166  
Pro Ser Ala Lys Gln Arg Gly Ser Lys Gly Gly His Gly Ala Ala Ser  
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ccc tcg gag aag ggt gcc cac ccg tcg gcc gcg cgt cct ctc gcc gct 214  
Pro Ser Glu Lys Gly Ala His Pro Ser Ala Ala Arg Pro Leu Ala Ala  
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ccg acg cca gca gcg ccc gcg tgc cgc tcg ccc agt ccc ggg gga gcc 262  
Pro Thr Pro Ala Ala Pro Ala Cys Arg Ser Pro Ser Pro Gly Gly Ala  
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Pro Ala Ser Phe Pro Gly Arg Ala Pro Arg Ser Leu Ala Ser Gln Pro  
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gcg gcc cga gcc gcc gcc gcg ccc gcc atg ccc tcg gcc aaa caa agg 358  
Ala Ala Arg Ala Ala Ala Ala Pro Ala Met Pro Ser Ala Lys Gln Arg  
66 71 76 81  
ggc tcc aag ggc ggc cac ggc gcc gcg agc ccc tcg gag aag ggt gcc 406  
Gly Ser Lys Gly Gly His Gly Ala Ala Ser Pro Ser Glu Lys Gly Ala  
82 87 92 97  
cac ccg tcg ggc ggc gcg gat gac gtg gcg aag aag ccg ccg ccg gcg 454  
His Pro Ser Gly Gly Ala Asp Asp Val Ala Lys Lys Pro Pro Pro Ala  
98 103 108 113  
ccg cag cag ccg ccg ccg ccg ccc gcg ccg cac ccg cag cag cac ccg 502  
Pro Gln Gln Pro Pro Pro Pro Pro Ala Pro His Pro Gln Gln His Pro  
114 119 124 129

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tcg gat ggg atc cat gtg gtg aag gac gcc cgg gag cgg gac ttc acg Ser Asp Gly Ile His Val Val Lys Asp Ala Arg Glu Arg Asp Phe Thr 290 295 300 305	1030
tcc ctg gag aac acg gtg gag gag cgg ctg acg gag ctc acc aaa tcc Ser Leu Glu Asn Thr Val Glu Glu Arg Leu Thr Glu Leu Thr Lys Ser 306 311 316 321	1078
atc aac gac aac atc gcc atc ttc aca gaa gtc cag aag agg agc cag Ile Asn Asp Asn Ile Ala Ile Phe Thr Glu Val Gln Lys Arg Ser Gln 322 327 332 337	1126
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Glu Gly Asn Lys Gln Asp Leu Lys Ala Leu Lys Glu Ala Val Lys Glu	
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Ile Gln Thr Ser Ala Lys Ser Arg Glu Trp Asp Met Glu Ala Leu Arg	
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Ser Thr Leu Gln Thr Met Glu Ser Asp Ile Tyr Thr Glu Val Arg Glu	
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Leu Val Ser Leu Lys Gln Glu Gln Gln Ala Phe Lys Glu Ala Ala Asp	
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Glu Glu Ser Val Ser Arg Leu Pro Glu Glu Ile Arg Arg Leu Glu Glu	
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Glu Leu Arg Gln Leu Lys Ser Asp Ser His Gly Pro Lys Glu Asp Gly	
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Gly Phe Arg His Ser Glu Ala Phe Glu Ala Leu Gln Gln Lys Ser Gln	
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Gly Leu Asp Ser Arg Leu Gln His Val Glu Asp Gly Val Leu Ser Met	
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Gln Val Ala Ser Ala Arg Gln Thr Glu Ser Leu Glu Ser Leu Leu Ser	
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Lys Ser Gln Glu His Glu Gln Arg Leu Ala Ala Leu Gln Gly Arg Leu	
514 519 524 529	
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Glu Gly Leu Gly Ser Ser Glu Ala Asp Gln Asp Gly Leu Ala Ser Thr	
530 535 540 545	
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Val Arg Ser Leu Gly Glu Thr Gln Leu Val Leu Tyr Gly Asp Val Glu	
546 551 556 561	
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Glu Leu Lys Arg Ser Val Gly Glu Leu Pro Ser Thr Val Glu Ser Leu	
562 567 572 577	
cag aag gtg cag gag cag gtg cac acg ctg ctc agt cag gac caa gcc	1894
Gln Lys Val Gln Glu Gln Val His Thr Leu Leu Ser Gln Asp Gln Ala	

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cag gcc gcc cgt ctg	cct cct cag gac ttc	ctg gac aga ctt tct tct		1942
Gln Ala Ala Arg Leu	Pro Pro Gln Asp Phe	Leu Asp Arg Leu Ser Ser		
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cta gac aac ctg aaa	gcc tca gtc agc caa	gtg gag gcg gac ttg aaa		1990
Leu Asp Asn Leu Lys	Ala Ser Val Ser Gln	Val Glu Ala Asp Leu Lys		
610	615	620	625	
atg ctc agg act gct	gtg gac agt ttg gtt	gca tac tcg gtc aaa ata		2038
Met Leu Arg Thr Ala	Val Asp Ser Leu Val	Ala Tyr Ser Val Lys Ile		
626	631	636	641	
gaa acc aac gag aac	aat ctg gaa tca gcc	aag ggt tta cta gat gac		2086
Glu Thr Asn Glu Asn	Asn Leu Glu Ser Ala	Lys Gly Leu Leu Asp Asp		
642	647	652	657	
ctg agg aat gat ctg	gat agg ttg ttt gtg	aaa gtg gag aag att cac		2134
Leu Arg Asn Asp Leu	Asp Arg Leu Phe Val	Lys Val Glu Lys Ile His		
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Glu Lys Val *				
674				
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3169

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<400> 714

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cggggtccggg ccccggcgaa cccagtcctt ggccccggc cccgggcca gcttcggc	178
atg gat gtg agg ttc tac ccc gcg gcg gcc ggg gac cct gcc agc ctg	226
Met Asp Val Arg Phe Tyr Pro Ala Ala Ala Gly Asp Pro Ala Ser Leu	
1 5 10 15	
gac ttc gcg cag tgc ctg ggg tac tac ggc tac agc aag ttt gga aat	274
Asp Phe Ala Gln Cys Leu Gly Tyr Tyr Gly Tyr Ser Lys Phe Gly Asn	
17 22 27 32	
aat aat aac tat atg aat atg gct gag gcg aac aat gcg ttc ttc gct	322
Asn Asn Asn Tyr Met Asn Met Ala Glu Ala Asn Asn Ala Phe Phe Ala	
33 38 43 48	
gcc agt gag cag aca ttc cac aca cca agc ctt ggg gac gag gaa ttc	370
Ala Ser Glu Gln Thr Phe His Thr Pro Ser Leu Gly Asp Glu Glu Phe	
49 54 59 64	
gaa att cca cca atc acg cct cct cca gag tca gac cct gcc cta ggc	418
Glu Ile Pro Pro Ile Thr Pro Pro Pro Glu Ser Asp Pro Ala Leu Gly	
65 70 75 80	
atg ccg gat gta ctg cta ccc ttt caa gcc ctc agc gat cca ttg cct	466
Met Pro Asp Val Leu Leu Pro Phe Gln Ala Leu Ser Asp Pro Leu Pro	
81 86 91 96	
tcc cag gga agt gaa ttc aca ccc cag ttt ccc cct caa agc ctg gac	514
Ser Gln Gly Ser Glu Phe Thr Pro Gln Phe Pro Pro Gln Ser Leu Asp	
97 102 107 112	
ctc cct tcc att aca atc tca aga aat ctc gtg gaa caa gat ggc gtg	562
Leu Pro Ser Ile Thr Ile Ser Arg Asn Leu Val Glu Gln Asp Gly Val	
113 118 123 128	
ctt cat agc agt ggg ttg cat atg gat cag agc cac aca caa gtg tcc	610
Leu His Ser Ser Gly Leu His Met Asp Gln Ser His Thr Gln Val Ser	
129 134 139 144	

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Gln Tyr Arg Gln Asp Pro Ser Leu Ile Met Arg Ser Ile Val His Met	
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Thr Asp Ala Ala Arg Ser Gly Val Met Pro Pro Ala Gln Leu Thr Thr	
161 166 171 176	
atc aac cag tct cag ctc agc gcc cag ttg ggg ttg aat ttg gga ggt	754
Ile Asn Gln Ser Gln Leu Ser Ala Gln Leu Gly Leu Asn Leu Gly Gly	
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Ala Ser Met Pro His Thr Ser Pro Ser Pro Pro Ala Ser Lys Ser Ala	
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act ccc tcc cct tcc agc tcc atc aat gaa gag gat gct gat gaa gcc	850
Thr Pro Ser Pro Ser Ser Ser Ile Asn Glu Glu Asp Ala Asp Glu Ala	
209 214 219 224	
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Pro Lys Thr Pro Lys Lys Lys Lys Lys Lys Asp Pro Asn Glu Pro Gln	
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Lys Pro Val Ser Ala Tyr Ala Leu Phe Phe Arg Asp Thr Gln Ala Ala	
257 262 267 272	
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Ile Lys Gly Gln Asn Pro Asn Ala Thr Phe Gly Glu Val Ser Lys Ile	
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Lys Arg Lys Thr Glu Ala Ala Lys Lys Glu Tyr Leu Lys Ala Leu Ala	
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gca tac aga gcc agc ctc gtt tct aag gct gct gct gag tca gca gaa	1186
Ala Tyr Arg Ala Ser Leu Val Ser Lys Ala Ala Ala Glu Ser Ala Glu	
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Ala Gln Thr Ile Arg Ser Val Gln Gln Thr Leu Ala Ser Thr Asn Leu	
337 342 347 352	
aca tcc tct ctc ctt ctc aac act cca ctg tct caa cat gga aca gtg	1282
Thr Ser Ser Leu Leu Leu Asn Thr Pro Leu Ser Gln His Gly Thr Val	
353 358 363 368	
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Ser Ala Ser Pro Gln Thr Leu Gln Gln Ser Leu Pro Arg Ser Ile Ala	
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Pro Lys Pro Leu Thr Met Arg Leu Pro Met Asn Gln Ile Val Thr Ser	
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Val Thr Ile Ala Ala Asn Met Pro Ser Asn Ile Gly Ala Pro Leu Ile	
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Ser Ser Met Gly Thr Thr Met Val Gly Ser Ala Pro Ser Thr Gln Val	
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Ser Pro Ser Val Gln Thr Gln Gln His Gln Met Gln Leu Gln Gln Gln	
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Gln Gln Gln Gln Gln Gln Gln Met Gln Gln Met Gln Gln Gln Gln Leu	
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Gln Gln His Gln Met His Gln Gln Ile Gln Gln Gln Met Gln Gln Gln	
465 470 475 480	
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His Phe Gln His His Met Gln Gln His Leu Gln Gln Gln Gln His	
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Arg Leu Gln Leu Gln Gln Leu Gln His Met Gln His Gln Ser Gln Pro	
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Ser Pro Arg Gln His Ser Pro Val Ala Ser Gln Ile Thr Ser Pro Ile	
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Pro Ala Ile Gly Ser Pro Gln Pro Ala Ser Gln Gln His Gln Ser Gln	
545 550 555 560	
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Ile Gln Ser Gln Thr Gln Thr Gln Val Leu Ser Gln Val Ser Ile Phe	
561 566 571 576	
tga agac gcatatggca gacggatttg cgtataccaa ggagagtggc ataggagggg	1963
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577	
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 Met Ala Lys Ser Asn Gly Glu Asn Gly Pro Arg Ala Pro Ala Ala Gly  
 1 5 10 15  
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Ala	Thr	Thr	Asp	Glu	Leu	Ser	Ser	Leu	Gly	Ser	Asp	Ser	Glu	Ala	Asn		
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ggc	ttc	gcc	gag	cgc	cgc	atc	gac	aag	ttc	ggc	ttc	atc	gtg	ggc	tcg	250	
Gly	Phe	Ala	Glu	Arg	Arg	Ile	Asp	Lys	Phe	Gly	Phe	Ile	Val	Gly	Ser		
49					54					59				64			
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Gln	Gly	Ala	Glu	Gly	Ala	Leu	Glu	Glu	Val	Pro	Leu	Glu	Val	Leu	Arg		
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Gln	Arg	Glu	Ser	Lys	Trp	Leu	Asp	Met	Leu	Asn	Asn	Trp	Asp	Lys	Trp		
81					86					91				96			
atg	gcc	aag	aag	cac	aaa	aag	att	cgt	ctg	cgg	tgc	caa	aag	ggc	atc	394	
Met	Ala	Lys	Lys	His	Lys	Lys	Ile	Arg	Leu	Arg	Cys	Gln	Lys	Gly	Ile		
97					102					107				112			
ccg	cct	tct	ctg	cgg	ggc	cgt	gct	tgg	cag	tac	ctg	tca	gga	ggc	aag	442	
Pro	Pro	Ser	Leu	Arg	Gly	Arg	Ala	Trp	Gln	Tyr	Leu	Ser	Gly	Gly	Lys		
113					118					123				128			
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Val	Lys	Leu	Gln	Gln	Asn	Pro	Gly	Lys	Phe	Asp	Glu	Leu	Asp	Met	Ser		
129					134					139				144			
cct	ggg	gac	ccc	aag	tgg	ctg	gac	gtg	att	gag	cgt	gac	ctg	cac	cgg	538	
Pro	Gly	Asp	Pro	Lys	Trp	Leu	Asp	Val	Ile	Glu	Arg	Asp	Leu	His	Arg		
145					150					155				160			
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Gln	Phe	Pro	Phe	His	Glu	Met	Phe	Val	Ser	Arg	Gly	Gly	His	Gly	Gln		
161					166					171				176			
cag	gac	cta	ttc	cgt	gtg	ctg	aag	gcc	tac	acg	ctg	tac	cgg	ccc	gag	634	
Gln	Asp	Leu	Phe	Arg	Val	Leu	Lys	Ala	Tyr	Thr	Leu	Tyr	Arg	Pro	Glu		
177					182					187				192			
gag	ggc	tac	tgc	cag	gcc	cag	gcg	ccc	att	gcc	gct	gtc	ttg	ctc	atg	682	
Glu	Gly	Tyr	Cys	Gln	Ala	Gln	Ala	Pro	Ile	Ala	Ala	Val	Leu	Leu	Met		
193					198					203				208			
cat	atg	cct	gct	gag	caa	gcc	ttc	tgg	tgc	ctg	gta	cag	atc	tgt	gag	730	
His	Met	Pro	Ala	Glu	Gln	Ala	Phe	Trp	Cys	Leu	Val	Gln	Ile	Cys	Glu		
209					214					219				224			
aag	tac	ctg	ccc	ggc	tac	tac	agc	gag	aaa	ctg	gag	gcg	atc	cag	ctg	778	
Lys	Tyr	Leu	Pro	Gly	Tyr	Tyr	Ser	Glu	Lys	Leu	Glu	Ala	Ile	Gln	Leu		
225					230					235				240			
gac	ggg	gag	atc	ctt	ttc	tcg	ctg	ttg	cag	aag	gtg	tcg	ccg	gtg	gcc	826	
Asp	Gly	Glu	Ile	Leu	Phe	Ser	Leu	Leu	Gln	Lys	Val	Ser	Pro	Val	Ala		

241	246	251	256	
cac aag cac ctc agc	cgt cag aag atc gac	ccg ctc ctt tat atg aca		874
His Lys His Leu Ser	Arg Gln Lys Ile Asp	Pro Leu Leu Tyr Met Thr		
257	262	267	272	
gaa tgg ttc atg tgc	gcc ttc tcc cga acc	ttg ccc tgg agc tct gtg		922
Glu Trp Phe Met Cys	Ala Phe Ser Arg Thr	Leu Pro Trp Ser Ser Val		
273	278	283	288	
ctg cgt gtc tgg gac	atg ttc ttc tgt gaa	ggg gtc aag atc atc ttc		970
Leu Arg Val Trp Asp	Met Phe Phe Cys Glu	Gly Val Lys Ile Ile Phe		
289	294	299	304	
cgg gtg ggg ctg gtg	ctg ctg aag cac gcg	ctg ggc tcc cct gag aag		1018
Arg Val Gly Leu Val	Leu Leu Lys His Ala	Leu Gly Ser Pro Glu Lys		
305	310	315	320	
gtc aaa gcc tgc cag	ggc cag tac gag acc	atc gag cga ctg cgg agc		1066
Val Lys Ala Cys Gln	Gly Gln Tyr Glu Thr	Ile Glu Arg Leu Arg Ser		
321	326	331	336	
ctc agc ccc aag atc	atg cag gag gcc ttt	ctg gtc cag gag gtg gtg		1114
Leu Ser Pro Lys Ile	Met Gln Glu Ala Phe	Leu Val Gln Glu Val Val		
337	342	347	352	
gag ttg ccc gtg aca	gag cgc cag att gag	cgc gaa cac ctc att cag		1162
Glu Leu Pro Val Thr	Glu Arg Gln Ile Glu	Arg Glu His Leu Ile Gln		
353	358	363	368	
ctg cgg cgc tgg cag	gag acc cgg ggt gag	ctg cag tgc cgc tcc ccg		1210
Leu Arg Arg Trp Gln	Glu Thr Arg Gly Glu	Leu Gln Cys Arg Ser Pro		
369	374	379	384	
ccc agg ctg cat ggt	gcc aag gct atc ttg	gat gca gaa cct ggt ccc		1258
Pro Arg Leu His Gly	Ala Lys Ala Ile Leu	Asp Ala Glu Pro Gly Pro		
385	390	395	400	
cgg cct gcc cta caa	cct tca cca tcc atc	cgc ctg ccc cta gat gcc		1306
Arg Pro Ala Leu Gln	Pro Ser Pro Ser Ile	Arg Leu Pro Leu Asp Ala		
401	406	411	416	
ccc ctc cct ggc tcc	aaa gcc aag ccc aag	cca ccc aag cag gcc cag		1354
Pro Leu Pro Gly Ser	Lys Ala Lys Pro Lys	Pro Pro Lys Gln Ala Gln		
417	422	427	432	
aag gag cag cgg aaa	cag atg aag ggg aga	ggg cag ctg gag aag ccc		1402
Lys Glu Gln Arg Lys	Gln Met Lys Gly Arg	Gly Gln Leu Glu Lys Pro		
433	438	443	448	
cca gcc cca aat caa	gcc atg gtg gtg gcc	gct gca gga gat gca tgt		1450
Pro Ala Pro Asn Gln	Ala Met Val Val Ala	Ala Ala Gly Asp Ala Cys		
449	454	459	464	
ccc cca cag cat gtg	ccc ccg aag gac tca	gcc ccc aag gac tca gcc		1498
Pro Pro Gln His Val	Pro Pro Lys Asp Ser	Ala Pro Lys Asp Ser Ala		
465	470	475	480	

cct cag gat ttg gct ccc cag gtc tca gcc cac cac cgc tcc cag gag 1546  
 Pro Gln Asp Leu Ala Pro Gln Val Ser Ala His His Arg Ser Gln Glu  
 481 486 491 496

agc ttg acg tcc caa gag agt gag gac acc tac ttg taa ccctggcagc 1595  
 Ser Leu Thr Ser Gln Glu Ser Glu Asp Thr Tyr Leu \*  
 497 502 507

taaggcctcc agggcggggt ctccatataa ctacacggtt catgaactga cattccacat 1655

cctgcccacc ctctgagggc caagctgcct ggccactggg ctgggctgga gtctggctgg 1715

tccaacacag attctgcctg gtccaacaca gattctgcct gagcctcctt atttattttc 1775

tttacagtgg cactcaggct ggcccagcca gggcaggcag aagctagggc ctgggggggtg 1835

gggcctcctt cagccccctc ctctctggggg atgctcccca gggttagggg gctgggtgtga 1895

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ccccgttggg ccgcgcgttg ctgcgttgtg aggggtgtca gctcagtga tcccaggcag 120

ctcttagtgt ggagcagtga actgtgtgtg gttccttcta cttggggatc atg cag 176  
 Met Gln  
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aga gct tca cgt ctg aag aga gag ctg cac atg tta gcc aca gag cca 224  
 Arg Ala Ser Arg Leu Lys Arg Glu Leu His Met Leu Ala Thr Glu Pro  
 3 8 13 18

ccc cca ggc atc aca tgt tgg caa gat aaa gac caa atg gat gac ctg 272  
 Pro Pro Gly Ile Thr Cys Trp Gln Asp Lys Asp Gln Met Asp Asp Leu  
 19 24 29 34

cga gct caa ata tta ggt gga gcc aac aca cct tat gag aaa ggt gtt	320
Arg Ala Gln Ile Leu Gly Gly Ala Asn Thr Pro Tyr Glu Lys Gly Val	
35 40 45 50	
ttt aag cta gaa gtt atc att cct gag agg tac cca ttt gaa cct cct	368
Phe Lys Leu Glu Val Ile Ile Pro Glu Arg Tyr Pro Phe Glu Pro Pro	
51 56 61 66	
cag atc cga ttt ctc act cca att tat cat cca aac att gat tct gct	416
Gln Ile Arg Phe Leu Thr Pro Ile Tyr His Pro Asn Ile Asp Ser Ala	
67 72 77 82	
gga agg att tgt ctg gat gtt ctc aaa ttg cca cca aaa ggt gct tgg	464
Gly Arg Ile Cys Leu Asp Val Leu Lys Leu Pro Pro Lys Gly Ala Trp	
83 88 93 98	
aga cca tcc ctc aac atc gca act gtg ttg acc tct att cag ctg ctc	512
Arg Pro Ser Leu Asn Ile Ala Thr Val Leu Thr Ser Ile Gln Leu Leu	
99 104 109 114	
atg tca gaa ccc aac cct gat gac ccg ctc atg gct gac ata tcc tca	560
Met Ser Glu Pro Asn Pro Asp Asp Pro Leu Met Ala Asp Ile Ser Ser	
115 120 125 130	
gaa ttt aaa tat aat aag cca gcc ttc ctc aag aat gcc aga cag tgg	608
Glu Phe Lys Tyr Asn Lys Pro Ala Phe Leu Lys Asn Ala Arg Gln Trp	
131 136 141 146	
aca gag aag cat gca aga cag aaa caa aag gct gat gag gaa gag atg	656
Thr Glu Lys His Ala Arg Gln Lys Gln Lys Ala Asp Glu Glu Glu Met	
147 152 157 162	
ctt gat aat cta cca gag gct ggt gac tcc aga gta cac aac tca aca	704
Leu Asp Asn Leu Pro Glu Ala Gly Asp Ser Arg Val His Asn Ser Thr	
163 168 173 178	
cag aaa agg aag gcc agt cag cta gta ggc ata gaa aag aaa ttt cat	752
Gln Lys Arg Lys Ala Ser Gln Leu Val Gly Ile Glu Lys Lys Phe His	
179 184 189 194	
cct gat gtt tag ggg acttgctctg gttcatctta gttaatgtgt tctttgccaa	807
Pro Asp Val *	
195	
ggtgatctaa gttgcctacc ttgaattttt ttttaaatat atttgatgac ataatttttg	867
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gtcatttaat gttgaaaaaa aaaaagctt	956

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             Met Ala Met His Asn Lys Ala Ala Pro Pro Gln Ile Pro
              1             5             10

gac acc cgg cgg gag ctg gcg gag ctc gtg aag cgg aag cag gag ctg 157
Asp Thr Arg Arg Glu Leu Ala Glu Leu Val Lys Arg Lys Gln Glu Leu
 14             19             24             29

gcg gaa aca ttg gca aat ttg gag cga cag atc tat gct ttt gag gga 205
Ala Glu Thr Leu Ala Asn Leu Glu Arg Gln Ile Tyr Ala Phe Glu Gly
 30             35             40             45

agc tac ctg gaa gac act cag atg tat ggc aat att att cgt ggc tgg 253
Ser Tyr Leu Glu Asp Thr Gln Met Tyr Gly Asn Ile Ile Arg Gly Trp
 46             51             56             61

gat cgg tat ctg acc aac caa aaa aac tcc aat agc aaa aat gat cga 301
Asp Arg Tyr Leu Thr Asn Gln Lys Asn Ser Asn Ser Lys Asn Asp Arg
 62             67             72             77

agg aac cgg aag ttt aag gaa gct gag cgg ctc ttc agt aaa tcc tcg 349
Arg Asn Arg Lys Phe Lys Glu Ala Glu Arg Leu Phe Ser Lys Ser Ser
 78             83             88             93

gtt acc tca gca gct gca gta agt gca ttg gca gga gtt cag gac cag 397
Val Thr Ser Ala Ala Ala Val Ser Ala Leu Ala Gly Val Gln Asp Gln
 94             99             104             109

ctc att gaa aag agg gag cca gga agt ggg acg gaa agt gac act tct 445
Leu Ile Glu Lys Arg Glu Pro Gly Ser Gly Thr Glu Ser Asp Thr Ser
110             115             120             125

cca gac ttc cac aat cag gaa aat gag ccc agc cag gag gac cct gag 493
Pro Asp Phe His Asn Gln Glu Asn Glu Pro Ser Gln Glu Asp Pro Glu
126             131             136             141

gat ctg gat gga tct gtg cag gga gtg aaa cct cag aag gct gct tct 541
Asp Leu Asp Gly Ser Val Gln Gly Val Lys Pro Gln Lys Ala Ala Ser
142             147             152             157

tct act tcc tca ggg agt cac cac agc agc cat aaa aag cga aag aat 589
Ser Thr Ser Ser Gly Ser His His Ser Ser His Lys Lys Arg Lys Asn
158             163             168             173

aaa aac cgg cac agc ccg tct ggc atg ttt gat tat gac ttt gag att 637
Lys Asn Arg His Ser Pro Ser Gly Met Phe Asp Tyr Asp Phe Glu Ile
174             179             184             189

gat ctg aag tta aac aaa aaa cca cga gct gac tat tag aagacacatt 686

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Asp Leu Lys Leu Asn Lys Lys Pro Arg Ala Asp Tyr \*  
 190 195 200

agtgcagaag cttccaggct gtagagccct gcttcccttc tctgacctca caaagataaa 746  
 catccttcac ctgagttcgt ggccatccac ctctgctctc ccagacccag tgcctgtgac 806  
 tttgagtagt ttgtttctaaa tgtggtgaca aacaagtcac ttctgtaaga cattgggtct 866  
 tactttatgt catttttagt aacagaactg caggaagatc aagacaatgt tgtaatcccg 926  
 gcaagttgct aactgtgcgt ttctcccttc ttagaatgaa tgtctcccc aaaactggct 986  
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 Met Ala Met His Asn Lys Ala Ala Pro Pro Gln Ile Pro  
 1 5 10  
 gac acc cgg cgg gag ctg gcg gag ctg gtg aag cgg aag cag gag ctg 157  
 Asp Thr Arg Arg Glu Leu Ala Glu Leu Val Lys Arg Lys Gln Glu Leu  
 14 19 24 29  
 gcg gaa aca ttg gca aat ttg gag cga cag atc tat gct ttt gag gga 205  
 Ala Glu Thr Leu Ala Asn Leu Glu Arg Gln Ile Tyr Ala Phe Glu Gly  
 30 35 40 45  
 agc tac ctg gaa gac act cag atg tat ggc aat att att cgt ggc tgg 253  
 Ser Tyr Leu Glu Asp Thr Gln Met Tyr Gly Asn Ile Ile Arg Gly Trp  
 46 51 56 61  
 gat cgg tat ctg acc aac caa aaa aac tcc aat agc aaa aat gat cga 301  
 Asp Arg Tyr Leu Thr Asn Gln Lys Asn Ser Asn Ser Lys Asn Asp Arg  
 62 67 72 77  
 agg aac cgg aag ttt aag gaa gct gag cgg ctg ttc agt aaa tcc tcg 349  
 Arg Asn Arg Lys Phe Lys Glu Ala Glu Arg Leu Phe Ser Lys Ser Ser  
 78 83 88 93  
 gtt acc tca gca gct gca gta agt gca ttg gca gga gtt cag gac cag 397  
 Val Thr Ser Ala Ala Ala Val Ser Ala Leu Ala Gly Val Gln Asp Gln  
 94 99 104 109

ctc att gaa aag agg gag cca gga agt ggg acg gaa agt gac act tct	445
Leu Ile Glu Lys Arg Glu Pro Gly Ser Gly Thr Glu Ser Asp Thr Ser	
110 115 120 125	
cca gac ttc cac aat cag gaa aat gag ccc agc cag gag gac cct gag	493
Pro Asp Phe His Asn Gln Glu Asn Glu Pro Ser Gln Glu Asp Pro Glu	
126 131 136 141	
gat ctg gat gga tct gtg cag gga gtg aaa cct cag aag gct gct tct	541
Asp Leu Asp Gly Ser Val Gln Gly Val Lys Pro Gln Lys Ala Ala Ser	
142 147 152 157	
tct act tcc tca ggg agt cac cac agc agc cat aaa aag cga aag aat	589
Ser Thr Ser Ser Gly Ser His His Ser Ser His Lys Lys Arg Lys Asn	
158 163 168 173	
aaa aac cgg cac agg att gat ctg aag tta aac aaa aaa cca cga gct	637
Lys Asn Arg His Arg Ile Asp Leu Lys Leu Asn Lys Lys Pro Arg Ala	
174 179 184 189	
gac tat tag aagacac attagtgcag aagcttcag gctgtagagc cctgcttccc	693
Asp Tyr *	
190	
ttctctgacc tcacaaagat aaacatcctt cacctgagtt cgtggccatc cacctctgct	753
ctcccagacc cagtgcctgt gactttgagt agtttgttct aaatgtggtg acaaacaagt	813
catttctgta agacattggg tcttacttta tgtcattttt agtaacagaa ctgcaggaag	873
atcaagacaa tgttgtaatc ccggcaagtt gctaactgtg cgtttctccc ttcttagaat	933
gaatgtctcc cccaaaactg gctggcacca gcttcatctg tgataccctt caagaaatgt	993
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ccg cct act act act aaa ttc gcg gcc gcg tcg acg agg aag agg gcg	99
Pro Pro Thr Thr Thr Lys Phe Ala Ala Ala Ser Thr Arg Lys Arg Ala	
13 18 23 28	

gcg acg gtg gtg gtg act gag cgg ccc ggt gac agg atg ttg gtg ttg	147
Ala Thr Val Val Val Thr Glu Arg Pro Gly Asp Arg Met Leu Val Leu	
29 34 39 44	
gta tta gga gat ctg cac atc cca cac cgg tgc aac agt ttg cca gct	195
Val Leu Gly Asp Leu His Ile Pro His Arg Cys Asn Ser Leu Pro Ala	
45 50 55 60	
aaa ttc aaa aaa ctc ctg gtg cca gga aaa att cag cac att ctc tgc	243
Lys Phe Lys Lys Leu Leu Val Pro Gly Lys Ile Gln His Ile Leu Cys	
61 66 71 76	
aca gga aac ctt tgc acc aaa gag agt tat gac tat ctc aag act ctg	291
Thr Gly Asn Leu Cys Thr Lys Glu Ser Tyr Asp Tyr Leu Lys Thr Leu	
77 82 87 92	
gct ggt gat gtt cat att gtg aga gga gac ttc gat gag aat ctg aat	339
Ala Gly Asp Val His Ile Val Arg Gly Asp Phe Asp Glu Asn Leu Asn	
93 98 103 108	
tat cca gaa cag aaa gtt gtg act gtt gga cag ttc aaa att ggt ctg	387
Tyr Pro Glu Gln Lys Val Val Thr Val Gly Gln Phe Lys Ile Gly Leu	
109 114 119 124	
atc cat gga cat caa gtt att cca tgg gga gat atg gcc agc tta gcc	435
Ile His Gly His Gln Val Ile Pro Trp Gly Asp Met Ala Ser Leu Ala	
125 130 135 140	
ctg ttg cag agg caa ttt gat gtg gac att ctt atc tcg gga cac aca	483
Leu Leu Gln Arg Gln Phe Asp Val Asp Ile Leu Ile Ser Gly His Thr	
141 146 151 156	
cac aaa ttt gaa gca ttt gag cat gaa aat aaa ttc tac att aat cca	531
His Lys Phe Glu Ala Phe Glu His Glu Asn Lys Phe Tyr Ile Asn Pro	
157 162 167 172	
ggt tct gcc act ggg gca tat aat gcc ttg gaa aca aac att att cca	579
Gly Ser Ala Thr Gly Ala Tyr Asn Ala Leu Glu Thr Asn Ile Ile Pro	
173 178 183 188	
tca ttt gtg ttg atg gat atc cag gct tct aca gtg gtc acc tat gtg	627
Ser Phe Val Leu Met Asp Ile Gln Ala Ser Thr Val Val Thr Tyr Val	
189 194 199 204	
tat cag cta att gga gat gat gtg aaa gta gaa cga atc gaa tac aaa	675
Tyr Gln Leu Ile Gly Asp Asp Val Lys Val Glu Arg Ile Glu Tyr Lys	
205 210 215 220	
aaa cct taa agccagg cctgtcttga tgatttttgg ttttttttca ttgtcctgtt	731
Lys Pro *	
221	
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<400> 720

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cgccggctat ggccgtgccc tggggctgag ccctcaggtt gtgaccgaga ttcccgcaga      180
gagagactga ggggaagaga ggaaggaggg gcgggctcct ggcaaggcat tcgctcctga      240
gcggaatcct gcaaag      atg gag aag gag gag aca acc cgg gag ctg ctg      289
                        Met Glu Lys Glu Glu Thr Thr Arg Glu Leu Leu
                        1                      5

ctg ccc aac tgg cag ggt agt ggc tcc cac ggg ctg acc atc gcc cag      337
Leu Pro Asn Trp Gln Gly Ser Gly Ser His Gly Leu Thr Ile Ala Gln
12                      17                      22                      27

agg gac gac ggc gtc ttt gtg cag gag gtg acg cag aac tcc cct gcg      385
Arg Asp Asp Gly Val Phe Val Gln Glu Val Thr Gln Asn Ser Pro Ala
28                      33                      38                      43

gcc cgc act ggg gtg gtc aag gag ggg gac cag att gtg ggt gcc acc      433
Ala Arg Thr Gly Val Val Lys Glu Gly Asp Gln Ile Val Gly Ala Thr
44                      49                      54                      59

atc tac ttt gac aac ctg cag tcg ggt gag gtg acc cag ctg ctg aac      481
Ile Tyr Phe Asp Asn Leu Gln Ser Gly Glu Val Thr Gln Leu Leu Asn
60                      65                      70                      75

acc atg ggg cac cac acg gtg ggc ctg aag ctg cac cgc aag ggg gac      529
Thr Met Gly His His Thr Val Gly Leu Lys Leu His Arg Lys Gly Asp
76                      81                      86                      91

cgc tct ccc gag cct ggc cag acc tgg acc cgt gaa gtc ttc agc tcc      577
Arg Ser Pro Glu Pro Gly Gln Thr Trp Thr Arg Glu Val Phe Ser Ser
92                      97                      102                      107

tgc agc tct gaa gtg gtt ctg aac aca cca cag cca tca gca ctg gaa      625
Cys Ser Ser Glu Val Val Leu Asn Thr Pro Gln Pro Ser Ala Leu Glu
108                      113                      118                      123

tgc aaa gac cag aac aaa cag aag gaa gcc agc agc caa gcc ggg gca      673
Cys Lys Asp Gln Asn Lys Gln Lys Glu Ala Ser Ser Gln Ala Gly Ala
124                      129                      134                      139

gtt tca gtc tcc acc cca aat gca gga ctg tag aagcggcc aggaagaaaa      724
Val Ser Val Ser Thr Pro Asn Ala Gly Leu *
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140

145

150

ccacccccctc ttaaggttgt ttttgtgacc gttcttttga gcattgttct aaaaatggga 784  
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&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (274)..(2760)

&lt;400&gt; 721

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aatgaagaga agaaagatac agagagaaat gacatacaag atctccacga atatcattct 240  
ggttatgttc ataaatttcg ccgcacgtca gtc atg cgt aat ggg aaa act gag 294  
Met Arg Asn Gly Lys Thr Glu  
1 5

tgt tac ctt tcc atc cag act caa gag aac ttt ccg gcc aat tta aac 342  
Cys Tyr Leu Ser Ile Gln Thr Gln Glu Asn Phe Pro Ala Asn Leu Asn  
8 13 18 23

gaa ctt gtg aat tgt att gta atc agt tct ctg gta act aca caa agg 390  
Glu Leu Val Asn Cys Ile Val Ile Ser Ser Leu Val Thr Thr Gln Arg  
24 29 34 39

aag ttg aaa gcc atg tct ctg ttg ggt agt cgg aac caa ctg gct aga 438  
Lys Leu Lys Ala Met Ser Leu Leu Gly Ser Arg Asn Gln Leu Ala Arg  
40 45 50 55

gct gtt ctg aat cca aac cct atg gac ttc tgt aca aaa gat tta ctg 486  
Ala Val Leu Asn Pro Asn Pro Met Asp Phe Cys Thr Lys Asp Leu Leu  
56 61 66 71

act aca aca tct gag aga att att gcg tac tta aga gat ttc aat gaa 534  
Thr Thr Thr Ser Glu Arg Ile Ile Ala Tyr Leu Arg Asp Phe Asn Glu

72	77	82	87	
gat caa aag aaa gca ata gaa act gca tat gct atg gtg aaa cac tca				582
Asp Gln Lys Lys Ala Ile Glu Thr Ala Tyr Ala Met Val Lys His Ser				
88	93	98	103	
cca tca gtt gcc aaa atc tgc ttg att cat gga cca cct gga aca gga				630
Pro Ser Val Ala Lys Ile Cys Leu Ile His Gly Pro Pro Gly Thr Gly				
104	109	114	119	
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Gln Arg Lys Gly His Ser Asp Glu Asn Ser Asn Ala Lys Ile Lys Gln				
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Asn Arg Val Leu Val Cys Ala Pro Ser Asn Ala Ala Val Asp Glu Leu				
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Gln Arg Ala Leu Cys Arg Gly Gly Arg Glu Ile Gln Arg Gln Glu Leu				
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Asp Glu Asn Ile Ser Lys Val Ser Lys Glu Arg Gln Glu Leu Ala Ser				
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Lys Ile Lys Glu Val Gln Gly Arg Pro Gln Lys Thr Gln Ser Ile Ile				
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Ile Leu Glu Ser His Ile Ile Cys Cys Thr Leu Ser Thr Ser Gly Gly				
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2025/10/26

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1



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ccc ttc tga tcacagc acccaggagc ttgtctccag gaaggcggcc ccgtccccta	1040
Pro Phe *	
286	
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ccccccct accccaccta acacatttgc actgccagga atggacactg gaagtgccag	1160
gaggaaggaa ggctggtttg gtggggtagt ggggaggtca gggaggcggg gccaaagggtg	1220

tcccacattc ccaacaccgc cctctgatca ccatgggaat ctttggactc aggacagggc 1280  
caggtgcagg gctctccctc ctctcccctt cgctgtcccc tccccctgga gggcatgggtg 1340  
tcgggggggtg gcaactgagct atgagtcccg gggatgggtga ggaacgccac agacagagcc 1400  
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atg gaa tcc gtc acc ttt gag gat gtg gcc gtg gag ttc atc cag gag 168  
Met Glu Ser Val Thr Phe Glu Asp Val Ala Val Glu Phe Ile Gln Glu  
1 5 10 15  
tgg gca ttg ctg gac agc gca cgg agg agc ctg tgc aaa tac agg atg 216  
Trp Ala Leu Leu Asp Ser Ala Arg Arg Ser Leu Cys Lys Tyr Arg Met  
17 22 27 32  
ctt gac cag tgc agg acc ctg gcc tcc agg gga act cca cca tgc aaa 264  
Leu Asp Gln Cys Arg Thr Leu Ala Ser Arg Gly Thr Pro Pro Cys Lys  
33 38 43 48  
ccc agt tgt gtc tcc cag ctg ggg caa aga gca gag cca aag gca aca 312  
Pro Ser Cys Val Ser Gln Leu Gly Gln Arg Ala Glu Pro Lys Ala Thr  
49 54 59 64  
gaa cga ggg att ctc cgt gcc aca ggt gtt gcc tgg gaa tct caa ctt 360  
Glu Arg Gly Ile Leu Arg Ala Thr Gly Val Ala Trp Glu Ser Gln Leu  
65 70 75 80  
aaa ccc gaa gag ttg cct tct atg cag gat ctt ttg gaa gaa gca tcc 408  
Lys Pro Glu Glu Leu Pro Ser Met Gln Asp Leu Leu Glu Glu Ala Ser  
81 86 91 96  
tcc agg gac atg caa atg ggg ccg ggg tctg ttc ctg agg atg cag ctg 456  
Ser Arg Asp Met Gln Met Gly Pro Gly Leu Phe Leu Arg Met Gln Leu  
97 102 107 112  
gtg ccc tcc ata gaa gag agg gag aca cca ttg act cga gag gac cgg 504

Val Pro Ser Ile Glu Glu Arg Glu Thr Pro Leu Thr Arg Glu Asp Arg	
113 118 123 128	
cca gct ctc cag gag ccg cct tgg tct ctg gga tgc acg gga ctg aag	552
Pro Ala Leu Gln Glu Pro Pro Trp Ser Leu Gly Cys Thr Gly Leu Lys	
129 134 139 144	
gcc gct atg cag att cag agg gtg gtg ata cca gtg cct aca ctg ggc	600
Ala Ala Met Gln Ile Gln Arg Val Val Ile Pro Val Pro Thr Leu Gly	
145 150 155 160	
cac cgc aac cca tgg gtg gcc agg gat tct ggt gag tga gtgctgcgtg	649
His Arg Asn Pro Trp Val Ala Arg Asp Ser Gly Glu *	
161 166 171	
gaacacgtgg ccagagggcc ctgctgtcct tgtgttctgt ccaggaactt gtatcctatc	709
ctgcctgcat ttcctctgac tgcaggcact gccgtggcac catagagagg atacagaagg	769
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tgactacacg ataatgttga ttttgaaaaa ttatgattga atttactaga aatggcctgt	949
gttttaactg tgtttttata aatgagggtc aggcgggttg cagtggctca tgcctttaat	1009
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Met Gly Asp Ala Phe Gln His Ser	
1 5	
tcc cag tca atc cct aga ttt att aag gaa tca cta aaa caa att ctt	159
Ser Gln Ser Ile Pro Arg Phe Ile Lys Glu Ser Leu Lys Gln Ile Leu	
9 14 19 24	
gag gag agt gac tct agg cag atc ttt tac ttc ttg tgc ttg aat ctg	207
Glu Glu Ser Asp Ser Arg Gln Ile Phe Tyr Phe Leu Cys Leu Asn Leu	
25 30 35 40	

ctt ttt acc ttt gtg gaa tta ttc tat ggc gtg ctg acc aat agt ctg	255
Leu Phe Thr Phe Val Glu Leu Phe Tyr Gly Val Leu Thr Asn Ser Leu	
41 46 51 56	
ggc ctg atc tog gat gga ttc cac atg ctt ttt gac tgc tct gct tta	303
Gly Leu Ile Ser Asp Gly Phe His Met Leu Phe Asp Cys Ser Ala Leu	
57 62 67 72	
gtc atg gga ctt ttt gct gcc ctg atg agt agg tgg aaa gcc act cgg	351
Val Met Gly Leu Phe Ala Ala Leu Met Ser Arg Trp Lys Ala Thr Arg	
73 78 83 88	
att ttc tcc tat ggg tac ggc cga ata gaa att ctg tct gga ttt att	399
Ile Phe Ser Tyr Gly Tyr Gly Arg Ile Glu Ile Leu Ser Gly Phe Ile	
89 94 99 104	
aat gga ctt ttt cta ata gta ata gcg ttt ttt gtg ttt atg gag tca	447
Asn Gly Leu Phe Leu Ile Val Ile Ala Phe Phe Val Phe Met Glu Ser	
105 110 115 120	
gtg gct aga ttg att gat cct cca gaa tta gac act cac atg tta aca	495
Val Ala Arg Leu Ile Asp Pro Pro Glu Leu Asp Thr His Met Leu Thr	
121 126 131 136	
cca gtc tca gtt gga ggg ctg ata gta aac ctt att ggt atc tgt gcc	543
Pro Val Ser Val Gly Gly Leu Ile Val Asn Leu Ile Gly Ile Cys Ala	
137 142 147 152	
ttt agc cat gcc cat agc cat gcc cat gga gct tct caa gga agc tgt	591
Phe Ser His Ala His Ser His Ala His Gly Ala Ser Gln Gly Ser Cys	
153 158 163 168	
cac tca tct gat cac agc cat tca cat cat atg cat gga cac agt gac	639
His Ser Ser Asp His Ser His Ser His His Met His Gly His Ser Asp	
169 174 179 184	
cat ggg cat ggt cac agc cac gga tct gcg ggt gga ggc atg aat gct	687
His Gly His Gly His Ser His Gly Ser Ala Gly Gly Gly Met Asn Ala	
185 190 195 200	
aac atg agg ggt gta ttt cta cat gtt ttg gca gat act ctt ggc agc	735
Asn Met Arg Gly Val Phe Leu His Val Leu Ala Asp Thr Leu Gly Ser	
201 206 211 216	
att ggt gtg atc gta tcc aca gtt ctt ata gag cag ttt gga tgg ttc	783
Ile Gly Val Ile Val Ser Thr Val Leu Ile Glu Gln Phe Gly Trp Phe	
217 222 227 232	
atc gct gac cca ctc tgt tct ctt ttt att gct ata tta ata ttt ctc	831
Ile Ala Asp Pro Leu Cys Ser Leu Phe Ile Ala Ile Leu Ile Phe Leu	
233 238 243 248	
agg gtt gtt cca ctg att aaa gat gcc tgc cag gtt cta ctc ctg aga	879
Arg Val Val Pro Leu Ile Lys Asp Ala Cys Gln Val Leu Leu Leu Arg	
249 254 259 264	



ttg cca cca gaa tat gaa aaa gaa cta cat att gct tta gaa aag ata	927
Leu Pro Pro Glu Tyr Glu Lys Glu Leu His Ile Ala Leu Glu Lys Ile	
265 270 275 280	
cag aaa att gaa gga tta ata tca tac cga gac cct cat ttt tgg cgt	975
Gln Lys Ile Glu Gly Leu Ile Ser Tyr Arg Asp Pro His Phe Trp Arg	
281 286 291 296	
cat tct gct agt att gtg gca gga aca att cat ata cag gtg aca tct	1023
His Ser Ala Ser Ile Val Ala Gly Thr Ile His Ile Gln Val Thr Ser	
297 302 307 312	
gat gtg cta gaa caa aga ata gta cag cag gtt aca gga ata ctt aaa	1071
Asp Val Leu Glu Gln Arg Ile Val Gln Gln Val Thr Gly Ile Leu Lys	
313 318 323 328	
gat gct gga gta aac aat tta aca att caa gtg gaa aag gag gca tac	1119
Asp Ala Gly Val Asn Asn Leu Thr Ile Gln Val Glu Lys Glu Ala Tyr	
329 334 339 344	
ttt caa cat atg tct ggc cta agt act gga ttt cat gat gtt ctg gct	1167
Phe Gln His Met Ser Gly Leu Ser Thr Gly Phe His Asp Val Leu Ala	
345 350 355 360	
atg aca aaa caa atg gaa tcc atg aaa tac tgc aaa gat ggt act tac	1215
Met Thr Lys Gln Met Glu Ser Met Lys Tyr Cys Lys Asp Gly Thr Tyr	
361 366 371 376	
atc atg tga gataact caagaattac ccctggagaa taaacaatga agattaaatg	1271
Ile Met *	
377	
actcagtatt tgtaatatg ccagaaggat aaaaattaca cattaactgt acagaaacag	1331
agttccctac tactggatca aggaatcttt cttgaaggaa atttaaatac agaatgaaac	1391
attaatggta aaagtggagt aattatttta attatgtgta taaaaggaat caaatTTTga	1451
gtaaacaatga tgtattacat catcttcgaa aatagatatg atggattcta gtgaagacca	1511
aaattacttc tgtttacttt ctatcaggaa gcatctccat tgtaaatatg tatttacatg	1571
tttattacaa agaccctaat gaaaaatTTT tagtccattt tttgcatagc ctaaagataa	1631
aataggaata aaagttctat atttatggat tttctgtata taaaactggt ttctaattat	1691
aacttaagtc cattaagtaa aatctgtatt gccactttta atgtaaaacta aattatttgg	1751
gagaaacttc aaccactgat atgagataag caatgagaat aggggaagtgt ataacatcac	1811
agtttttgat gtattacaaa aatcaaccac tctataaaat aaattttttt tacttttggg	1871
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tagg atg atc gag gtt gtt tgc aac gac cgt ctg ggg aag aag gtc cgc      169
Met Ile Glu Val Val Cys Asn Asp Arg Leu Gly Lys Lys Val Arg
   1             5             10

gtt aaa tgc aac acg gat gat acc atc ggg gac ctt aag aag ctg att      217
Val Lys Cys Asn Thr Asp Asp Thr Ile Gly Asp Leu Lys Lys Leu Ile
   16             21             26             31

gca gcc caa act ggt acc cgt tgg aac aag att gtc ctg aag aag tgg      265
Ala Ala Gln Thr Gly Thr Arg Trp Asn Lys Ile Val Leu Lys Lys Trp
   32             37             42             47

tac acg att ttt aag gac cac gtg tct ctg ggg gac tat gaa atc cac      313
Tyr Thr Ile Phe Lys Asp His Val Ser Leu Gly Asp Tyr Glu Ile His
   48             53             58             63

gat ggg atg aac ctg gag ctt tat tat caa tag atgagaat cctcatcttc      364
Asp Gly Met Asn Leu Glu Leu Tyr Tyr Gln *
   64             69             74

ctgccccgct ttctctctcc atctcatcc cccacactgg gatagatgct tgtttgtaaa    424

aactcacctt aataaagact tagatgttgc aaaaaaaaaa aa                        466
  
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<400> 728

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tttaattgaa aagtaacttg ggttctcttt agaaaccctt atttgggtgtg cgcattctggc    180
  
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tatttcacag agatttcagt tttgcaaaga agtcggagtt gattttcttcc ctcagacaag	240
ctattggttg ttggtgggca acagaagttg ctcagcatag acaggggaaa aaacgggttac	300
ggatgagact gaaagaaaac ctcaaaggag aactctgaga attcatctca ggatgaagct	360
gcaagggcaa aggagaagta cttgtgacac aagcaa atg ggt cca ttg atc aac	414
Met Gly Pro Leu Ile Asn	
1	
aga tgc aag aag att ctt ctc cca act act gta cct cct gca acg atg	462
Arg Cys Lys Lys Ile Leu Leu Pro Thr Thr Val Pro Pro Ala Thr Met	
7 12 17 22	
aga atc tgg ctc ctt gga ggc ctg ctg cca ttc ctg ctg ctc ctc tct	510
Arg Ile Trp Leu Leu Gly Gly Leu Leu Pro Phe Leu Leu Leu Leu Ser	
23 28 33 38	
ggc ctg cag aga ccc aca gag ggt tct gag gtt gca att aaa atc gac	558
Gly Leu Gln Arg Pro Thr Glu Gly Ser Glu Val Ala Ile Lys Ile Asp	
39 44 49 54	
ttc gac ttc gca cca ggt tct ttt gat gat cag tac caa ggc tgt agc	606
Phe Asp Phe Ala Pro Gly Ser Phe Asp Asp Gln Tyr Gln Gly Cys Ser	
55 60 65 70	
aaa cag gtt atg gag aaa cta act caa ggg gat tat ttc aca aaa gac	654
Lys Gln Val Met Glu Lys Leu Thr Gln Gly Asp Tyr Phe Thr Lys Asp	
71 76 81 86	
ata gaa gcc cag aag aat tat ttt agg atg tgg caa aaa gcc cac tta	702
Ile Glu Ala Gln Lys Asn Tyr Phe Arg Met Trp Gln Lys Ala His Leu	
87 92 97 102	
gcc tgg ctt aac caa gga aaa gtt cta ccc cag aac atg act acc aca	750
Ala Trp Leu Asn Gln Gly Lys Val Leu Pro Gln Asn Met Thr Thr Thr	
103 108 113 118	
cac gct gtg gct att ttg ttt tat aca ttg aac agc aat gtt cat tct	798
His Ala Val Ala Ile Leu Phe Tyr Thr Leu Asn Ser Asn Val His Ser	
119 124 129 134	
gac ttt act aga gcc atg gcc tct gtt gcc agg act cca cag cag tat	846
Asp Phe Thr Arg Ala Met Ala Ser Val Ala Arg Thr Pro Gln Gln Tyr	
135 140 145 150	
gaa cgt tca ttc cac ttc aaa tat tta cac tac tac ctc acc tca gca	894
Glu Arg Ser Phe His Phe Lys Tyr Leu His Tyr Tyr Leu Thr Ser Ala	
151 156 161 166	
atc cag ctg ctg agg aaa gac agc atc atg gag aat ggc act ctg tgc	942
Ile Gln Leu Leu Arg Lys Asp Ser Ile Met Glu Asn Gly Thr Leu Cys	
167 172 177 182	
tat gag gtg cat tat agg acg aag gat gtc cac ttt aat gcc tac aca	990
Tyr Glu Val His Tyr Arg Thr Lys Asp Val His Phe Asn Ala Tyr Thr	
183 188 193 198	

ggg gcc acc att cta ttt ggc caa ttc ctc tcc aca tcc ctc ctg aaa	1038
Gly Ala Thr Ile Leu Phe Gly Gln Phe Leu Ser Thr Ser Leu Leu Lys	
199 204 209 214	
gaa gag gca cag gag ttt ggg aac cag aca cta ttt acc ata ttc acc	1086
Glu Glu Ala Gln Glu Phe Gly Asn Gln Thr Leu Phe Thr Ile Phe Thr	
215 220 225 230	
tgc ctg ggt gca cct gta cag tac ttc tcc ctc aag aag gaa gtc ttg	1134
Cys Leu Gly Ala Pro Val Gln Tyr Phe Ser Leu Lys Lys Glu Val Leu	
231 236 241 246	
atc cct ccc tat gag ctg ttt aaa gtt ata aat atg agc tac cac cca	1182
Ile Pro Pro Tyr Glu Leu Phe Lys Val Ile Asn Met Ser Tyr His Pro	
247 252 257 262	
aga gga gac tgg ttg cag ttg agg tca act ggg aac ctg agc aca tat	1230
Arg Gly Asp Trp Leu Gln Leu Arg Ser Thr Gly Asn Leu Ser Thr Tyr	
263 268 273 278	
aac tgt cag ctg cta aaa gct tcc agc aag aaa tgc atc cct gat cct	1278
Asn Cys Gln Leu Leu Lys Ala Ser Ser Lys Lys Cys Ile Pro Asp Pro	
279 284 289 294	
ata gct att gca tct ctc tcc ttt ttg acc agt gtc atc atc ttt tcc	1326
Ile Ala Ile Ala Ser Leu Ser Phe Leu Thr Ser Val Ile Ile Phe Ser	
295 300 305 310	
aaa agc aga gta taa agaaatcttg tggctccttt tatttaaaaa aaatatttaa	1381
Lys Ser Arg Val *	
311	
ataaaatctt ttttattggc cttttggcta gaaatggaca tttattttcc aggaaggatg	1441
atcccatcat acttctgctg aaaccagcgc atggccccct ctttgcta at tc	1493

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ccgccaaagt tctgcacgag cggagttetta ttgtgtcgtt atttggacaa gaggcacatt	180
gacccaattt ggagacgtat tttcgaagga ggtgtgaaaa agacagc atg aac ttt	236
	Met Asn Phe
	1
acc cca aca cac acc cct gtc tgc aga agg cga aca gtt gtc tcc aaa	284
Thr Pro Thr His Thr Pro Val Cys Arg Arg Arg Thr Val Val Ser Lys	
4 9 14 19	
cgt ggt gtt gcc gtc agt ggt ccc acc aag agg agg gga atg gca gat	332
Arg Gly Val Ala Val Ser Gly Pro Thr Lys Arg Arg Gly Met Ala Asp	
20 25 30 35	
tca ctg gag tca acc ccc ttg cct tcc ccc gaa gat cgt ctg gcc aaa	380
Ser Leu Glu Ser Thr Pro Leu Pro Ser Pro Glu Asp Arg Leu Ala Lys	
36 41 46 51	
ctc cat cct tct aag gag ctc ctg gaa tat tat caa aag aag atg gct	428
Leu His Pro Ser Lys Glu Leu Leu Glu Tyr Tyr Gln Lys Lys Met Ala	
52 57 62 67	
gag tgt gag gca gaa aat gag gac ttg ctg aag aaa ctg gaa ctc tac	476
Glu Cys Glu Ala Glu Asn Glu Asp Leu Leu Lys Lys Leu Glu Leu Tyr	
68 73 78 83	
aaa gaa gct tgt gaa gga cag cat aaa ctt gaa tgt gat ttg cag cag	524
Lys Glu Ala Cys Glu Gly Gln His Lys Leu Glu Cys Asp Leu Gln Gln	
84 89 94 99	
agg gag gaa gag att gct gaa ttg cag aaa gct cta agt gat atg cag	572
Arg Glu Glu Glu Ile Ala Glu Leu Gln Lys Ala Leu Ser Asp Met Gln	
100 105 110 115	
gtc tgc ctc ttc cag gaa cgg gaa cat gtt tta cgc ctc tac tca gaa	620
Val Cys Leu Phe Gln Glu Arg Glu His Val Leu Arg Leu Tyr Ser Glu	
116 121 126 131	
aat gac cga ctg aga atc agg gag cta gaa gac aag aaa aag att cag	668
Asn Asp Arg Leu Arg Ile Arg Glu Leu Glu Asp Lys Lys Lys Ile Gln	
132 137 142 147	
aat ctc ttg gct ctt gtg gga aca gat gct gga gaa gtg acc tat ttt	716
Asn Leu Leu Ala Leu Val Gly Thr Asp Ala Gly Glu Val Thr Tyr Phe	
148 153 158 163	
tgt aag gag cct cct cac aaa gtc acc att ctc caa aag act atc cag	764
Cys Lys Glu Pro Pro His Lys Val Thr Ile Leu Gln Lys Thr Ile Gln	
164 169 174 179	
gct gta ggt gaa tgt gag cag agt gaa tct tca gct ttc aaa gca gat	812
Ala Val Gly Glu Cys Glu Gln Ser Glu Ser Ser Ala Phe Lys Ala Asp	
180 185 190 195	
cct aaa ata agc aaa aga aga cca tcg aga gag aga aaa gaa agt tct	860

Pro Lys Ile Ser Lys Arg Arg Pro Ser Arg Glu Arg Lys Glu Ser Ser	
196 201 206 211	
gag cat tac caa aga gac ata cag aca ctc atc cta cag gtg gaa gca	908
Glu His Tyr Gln Arg Asp Ile Gln Thr Leu Ile Leu Gln Val Glu Ala	
212 217 222 227	
ctg cag gct cag ctg gga gag cag acc aaa ctt tct cga gaa caa att	956
Leu Gln Ala Gln Leu Gly Glu Gln Thr Lys Leu Ser Arg Glu Gln Ile	
228 233 238 243	
gaa ggg ctc atc gag gac aga cgg att cac ctt gag gaa ata caa gtt	1004
Glu Gly Leu Ile Glu Asp Arg Arg Ile His Leu Glu Glu Ile Gln Val	
244 249 254 259	
cag cac cag aga aat cag aac aaa atc aaa gag cta acc aaa aat ctt	1052
Gln His Gln Arg Asn Gln Asn Lys Ile Lys Glu Leu Thr Lys Asn Leu	
260 265 270 275	
cac cac acc caa gaa ctg ctc tat gag agc acc aaa gat ttt ctg caa	1100
His His Thr Gln Glu Leu Leu Tyr Glu Ser Thr Lys Asp Phe Leu Gln	
276 281 286 291	
ctc aga tct gaa aac caa aat aaa gag aag tca tgg atg ctt gaa aaa	1148
Leu Arg Ser Glu Asn Gln Asn Lys Glu Lys Ser Trp Met Leu Glu Lys	
292 297 302 307	
gat aat ttg atg tca aag att aag caa tat agg gtg cag tgt aag aag	1196
Asp Asn Leu Met Ser Lys Ile Lys Gln Tyr Arg Val Gln Cys Lys Lys	
308 313 318 323	
aaa gaa gat aaa att gga aaa gtg ttg ccc gtt atg cat gag agt cac	1244
Lys Glu Asp Lys Ile Gly Lys Val Leu Pro Val Met His Glu Ser His	
324 329 334 339	
cat gct caa agt gaa tat att aag gta atg tcc tta tgt cgt aac gaa	1292
His Ala Gln Ser Glu Tyr Ile Lys Val Met Ser Leu Cys Arg Asn Glu	
340 345 350 355	
gtt gtt tat ttt tct ggg aga gtt gaa gga att cca aag aac cta caa	1340
Val Val Tyr Phe Ser Gly Arg Val Glu Gly Ile Pro Lys Asn Leu Gln	
356 361 366 371	
ttt gta atg taa gat ccattcagtc caggaagctc tggtagcagc tgcctcaaga	1395
Phe Val Met *	
372	
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[illegible]

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186 191 196 201	
ggc tcc ttt gac aac act gtg gct tgc tgg gaa tgg agt tcc gga gcc	797
Gly Ser Phe Asp Asn Thr Val Ala Cys Trp Glu Trp Ser Ser Gly Ala	
202 207 212 217	
agg acc cag cac ttt cgg ggg cac acg ggg gcg gta ttt agc gtg gac	845
Arg Thr Gln His Phe Arg Gly His Thr Gly Ala Val Phe Ser Val Asp	
218 223 228 233	
tac aat gat gaa ctg gat atc ttg gtg agc ggc tct gca gac ttc act	893
Tyr Asn Asp Glu Leu Asp Ile Leu Val Ser Gly Ser Ala Asp Phe Thr	
234 239 244 249	
gtg aaa gta tgg gct tta tct gct ggg aca tgc ctg aac aca ctc acc	941
Val Lys Val Trp Ala Leu Ser Ala Gly Thr Cys Leu Asn Thr Leu Thr	
250 255 260 265	
ggg cac acg gaa tgg gtc acc aag gta gtt ttg cag aag tgc aaa gtc	989
Gly His Thr Glu Trp Val Thr Lys Val Val Leu Gln Lys Cys Lys Val	
266 271 276 281	
aag tct ctc ttg cac agt cct gga gac tac atc ctc tta agt gca gac	1037
Lys Ser Leu Leu His Ser Pro Gly Asp Tyr Ile Leu Leu Ser Ala Asp	
282 287 292 297	
aaa tat gag att aag att tgg cca att ggg aga gaa atc aac tgt aag	1085
Lys Tyr Glu Ile Lys Ile Trp Pro Ile Gly Arg Glu Ile Asn Cys Lys	
298 303 308 313	
tgc tta aag aca ttg tct gtc tct gag gat aga agt atc tgc ctg cag	1133
Cys Leu Lys Thr Leu Ser Val Ser Glu Asp Arg Ser Ile Cys Leu Gln	
314 319 324 329	
cca aga ctt cat ttt gat ggc aaa tac att gtc tgt agt tca gca ctt	1181
Pro Arg Leu His Phe Asp Gly Lys Tyr Ile Val Cys Ser Ser Ala Leu	
330 335 340 345	
ggc ctc tac cag tgg gac ttt gcc agt tat gat att ctc agg gtc atc	1229
Gly Leu Tyr Gln Trp Asp Phe Ala Ser Tyr Asp Ile Leu Arg Val Ile	
346 351 356 361	
aag act cct gag ata gca aac ttg gcc ttg ctt ggc ttt gga gat atc	1277
Lys Thr Pro Glu Ile Ala Asn Leu Ala Leu Leu Gly Phe Gly Asp Ile	
362 367 372 377	
ttt gcc ctg ctg ttt gac aac cgc tac ctg tac atc atg gac ttg cgg	1325
Phe Ala Leu Leu Phe Asp Asn Arg Tyr Leu Tyr Ile Met Asp Leu Arg	
378 383 388 393	
aca gag agc ctg att agt cgc tgg cct ctg cca gag tac agg aaa tca	1373
Thr Glu Ser Leu Ile Ser Arg Trp Pro Leu Pro Glu Tyr Arg Lys Ser	
394 399 404 409	
aag aga ggc tca agc ttc ctg gca ggc gaa gca tcc tgg ctg aat gga	1421



Lys Arg Gly Ser Ser Phe Leu Ala Gly Glu Ala Ser Trp Leu Asn Gly  
 410 415 420 425  
 ctg gat ggg cac aat gac acg ggc ttg gtc ttt gcc acc agc atg cct 1469  
 Leu Asp Gly His Asn Asp Thr Gly Leu Val Phe Ala Thr Ser Met Pro  
 426 431 436 441  
 gac cac agt att cac ctg gtg ttg tgg aag gag cac ggc tga caccatg 1518  
 Asp His Ser Ile His Leu Val Leu Trp Lys Glu His Gly \*  
 442 447 452  
 agccaccacc gctgactgac tttgggtgcc ggggctgcgg gttttgggtg caacctctgc 1578  
 ggcagccgac tgcataaacc aaagtcttca cctaattggtg tcatcacgca gtgcacaatc 1638  
 atttatctat gttttgccag gggccagggc tcggggtggg ggagggcttg tttattgac 1698  
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 tggagtcgcc cggacctgag aggctgctgc actgggcttc agccagccct ccgg atg 177  
 Met  
 1  
 ctg gtg ctg cca tcc ccc tgc cct cag cct ctg gca ttt tcc tcc gtt 225  
 Leu Val Leu Pro Ser Pro Cys Pro Gln Pro Leu Ala Phe Ser Ser Val  
 2 7 12 17  
 gag acc atg gag ggc cct ccc cgt cgg act tgc cgc tcc cca gaa cct 273  
 Glu Thr Met Glu Gly Pro Pro Arg Arg Thr Cys Arg Ser Pro Glu Pro  
 18 23 28 33  
 gga cct tcc tcc tcc atc gga tct ccc cag gct tca tct cct cca agg 321  
 Gly Pro Ser Ser Ser Ile Gly Ser Pro Gln Ala Ser Ser Pro Pro Arg  
 34 39 44 49

ccc aac cac tac ctg ctt att gac act cag ggt gtc ccc tac aca gtg	369
Pro Asn His Tyr Leu Leu Ile Asp Thr Gln Gly Val Pro Tyr Thr Val	
50 55 60 65	
ctg gtg gac gag gag tca cag agg gag cca ggg gcc agt ggg gct cca	417
Leu Val Asp Glu Glu Ser Gln Arg Glu Pro Gly Ala Ser Gly Ala Pro	
66 71 76 81	
ggc cag aaa aag tgc tac agc tgc ccc gtg tgc tca agg gtc ttc gag	465
Gly Gln Lys Lys Cys Tyr Ser Cys Pro Val Cys Ser Arg Val Phe Glu	
82 87 92 97	
tac atg tcc tac ctt cag cga cac agc atc acc cac <sup>13</sup> tgc gag gta aag	513
Tyr Met Ser Tyr Leu Gln Arg His Ser Ile Thr His Ser Glu Val Lys	
98 103 108 113	
ccc ttc gag tgt gac atc tgt ggg aag gca ttc aag cgc gcc agc cac	561
Pro Phe Glu Cys Asp Ile Cys Gly Lys Ala Phe Lys Arg Ala Ser His	
114 119 124 129	
ttg gca cgg cac cat tcc att cac ctg gcg ggt ggt ggg cgg ccc cac	609
Leu Ala Arg His His Ser Ile His Leu Ala Gly Gly Gly Arg Pro His	
130 135 140 145	
ggc tgc ccg ctc tgc cct cgc cgc ttc cgg gat gcg ggt gag ctg gcc	657
Gly Cys Pro Leu Cys Pro Arg Arg Phe Arg Asp Ala Gly Glu Leu Ala	
146 151 156 161	
cag cac agc cgg gtg cac tct ggg gaa cgc ccg ttt cag tgt cca cac	705
Gln His Ser Arg Val His Ser Gly Glu Arg Pro Phe Gln Cys Pro His	
162 167 172 177	
tgc cct cgc cgc ttt atg gag cag aac aca ctg cag aaa cac acg cgg	753
Cys Pro Arg Arg Phe Met Glu Gln Asn Thr Leu Gln Lys His Thr Arg	
178 183 188 193	
tgg aag cat cca tga gccgggctgc cgggtgcccc aggtaccaca ggactttgca	808
Trp Lys His Pro *	
194	
gggagcctgg actcctgtcc agacacctgg tgagagcctg aggctgggtgt tcagggccct	868
ggacacagac acagagcagc cgcattctcaa aggcagagcc ctgcctgaag gaggaatccg	928
tgagtaatct tcaggctctc cgtgttctgg agctgagatg ggaatgagcc cctacacaga	988
atggagtcct ctagcctaaa gatatacagct gttccatggc agagccttga ctggatggag	1048
gtggggagtg tgggtgtgtaa agtctctggc ctcataaaag gtggctgtgg gtcgtcagga	1108
atctgcgcca tcttctctggg ggcttctgcg ctgttgttgg ggaagggacc ccagtctgc	1168
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 Met Glu Phe Ala Ala Ile Cys Leu Arg Asn Ala Leu Leu Leu Leu  
 1 5 10  
 cct gaa gaa cag caa gat cca aag cag gaa aat ggg gct caa aat agt 154  
 Pro Glu Glu Gln Gln Asp Pro Lys Gln Glu Asn Gly Ala Gln Asn Ser  
 16 21 26 31  
 aat caa tta ggt ggg aac aca gag agc agc gaa agc agt gaa act tgc 202  
 Asn Gln Leu Gly Gly Asn Thr Glu Ser Ser Glu Ser Ser Glu Thr Cys  
 32 37 42 47  
 agc agt aaa agc cat gat gga gat aaa ttc att cca gct cca cct tct 250  
 Ser Ser Lys Ser His Asp Gly Asp Lys Phe Ile Pro Ala Pro Pro Ser  
 48 53 58 63  
 tct cca ttg aga aaa cag gaa tta gaa aac tta aag tgc tcc ata ctt 298  
 Ser Pro Leu Arg Lys Gln Glu Leu Glu Asn Leu Lys Cys Ser Ile Leu  
 64 69 74 79  
 gct tgc agt gcc tac gtg gct ctg gct ttg ggt gat aac ctc atg gct 346  
 Ala Cys Ser Ala Tyr Val Ala Leu Ala Leu Gly Asp Asn Leu Met Ala  
 80 85 90 95  
 ttg aat cat gca gat aaa ctt ctt cag cag ccc aag ctg tca gga tct 394  
 Leu Asn His Ala Asp Lys Leu Leu Gln Gln Pro Lys Leu Ser Gly Ser  
 96 101 106 111  
 ctt aag ttt ttg gga cat tta tat gct gca gaa gcc ctc atc tct ctc 442  
 Leu Lys Phe Leu Gly His Leu Tyr Ala Ala Glu Ala Leu Ile Ser Leu  
 112 117 122 127  
 gac aga ata tct gat gcc att act cac ttg aac ccg gag aat gtc act 490  
 Asp Arg Ile Ser Asp Ala Ile Thr His Leu Asn Pro Glu Asn Val Thr  
 128 133 138 143  
 gat gtc tcc tta ggg atc tct tca aat gag cag gac caa gga tca gac 538  
 Asp Val Ser Leu Gly Ile Ser Ser Asn Glu Gln Asp Gln Gly Ser Asp  
 144 149 154 159  
 aaa ggt gaa aat gaa gca atg gaa tcc tct ggt aag cgg gcc cct cag 586  
 Lys Gly Glu Asn Glu Ala Met Glu Ser Ser Gly Lys Arg Ala Pro Gln

160	165	170	175	
tgc tac ccc agt tcc gtc aac tct gcc agg act gtg atg ctg ttc aac				634
Cys Tyr Pro Ser Ser Val Asn Ser Ala Arg Thr Val Met Leu Phe Asn				
176	181	186	191	
ctt ggc agc gct tac tgc ctg agg agc gaa tat gac aaa gcc cga aag				682
Leu Gly Ser Ala Tyr Cys Leu Arg Ser Glu Tyr Asp Lys Ala Arg Lys				
192	197	202	207	
tgt ctc cac cag gcg gct tca atg atc cat cct aaa gag gtg ccc cct				730
Cys Leu His Gln Ala Ala Ser Met Ile His Pro Lys Glu Val Pro Pro				
208	213	218	223	
gag gcc atc ttg ctg gca gtc tac ctt gaa ctg cag aat ggt aat act				778
Glu Ala Ile Leu Leu Ala Val Tyr Leu Glu Leu Gln Asn Gly Asn Thr				
224	229	234	239	
cag ctg gcc tta cag atc atc aaa agg aat cag ctg ctc cct gca gtg				826
Gln Leu Ala Leu Gln Ile Ile Lys Arg Asn Gln Leu Leu Pro Ala Val				
240	245	250	255	
aaa aca cac tct gaa gtg aga aag aag cca gtg ttt cag cct gtc cac				874
Lys Thr His Ser Glu Val Arg Lys Lys Pro Val Phe Gln Pro Val His				
256	261	266	271	
ccg atc cag ccc atc caa atg ccg gct ttc acc act gtg cag aga aag				922
Pro Ile Gln Pro Ile Gln Met Pro Ala Phe Thr Thr Val Gln Arg Lys				
272	277	282	287	
tga tact tcacttttgg aaaactgtta cctgagaccc aggggagaat ttactggcca				979
*				
288				
ttttagttgt atcacagcag aatgaataaa agatggtgaa ggctgttaaa aaaaaaaaa				1038

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cacgaatctg cagcggctctg tggatgacac aagccaggct atccagcgaa tcaagaacga	180
ctttcaaaat ctgcagcagg tttttottca agccaagaag gacacggatt ggctgaagga	240

gaaagtgcag agcttgcaga cactggctgc caacaactct gcgttggcca aagccaacaa 300  
cgacaccctg gaggatatga acagccagct caactcattc acaggtcaga tggagaacat 360  
caccactatc tctcaaggcc aacgagcaga acctgaaaga cctgcaggac ttacacaaag 420  
atgcagagaa tagaacagcc atcaagttca accaactgga ggaacgcttc cagctctttg 480  
agacggatat tgtgaacatc attagcaata tcagttacac agcccaccac ctgcggaagc 540  
tgaccagcaa tctaaatgaa gtcaggacca cttgcacaga tacccttacc aaacacacag 600  
atgatctgac ctccttgaat aataccctgg ccaacatccg tttggattct gtttctctca 660  
  
gg atg caa caa gat ttg atg agg tcg agg tta gac act gaa gta gcc 707  
Met Gln Gln Asp Leu Met Arg Ser Arg Leu Asp Thr Glu Val Ala  
1 5 10  
  
aac tta tca gtg att atg gaa gaa atg aag cta gta gac tcc aag cat 755  
Asn Leu Ser Val Ile Met Glu Glu Met Lys Leu Val Asp Ser Lys His  
16 21 26 31  
  
ggg cag ctc atc aag aat ttt aca ata cta caa ggt cca ccg ggc ccc 803  
Gly Gln Leu Ile Lys Asn Phe Thr Ile Leu Gln Gly Pro Pro Gly Pro  
32 37 42 47  
  
agg ggt cca aga ggt gac aga gga tcc cag gga ccc cct ggc cca act 851  
Arg Gly Pro Arg Gly Asp Arg Gly Ser Gln Gly Pro Pro Gly Pro Thr  
48 53 58 63  
  
ggc aac aag gga cag aaa gga gag aag ggg gag cct gga cca cct ggc 899  
Gly Asn Lys Gly Gln Lys Gly Glu Lys Gly Glu Pro Gly Pro Pro Gly  
64 69 74 79  
  
cct gcg ggt gag aga ggc cca att gga cca gct ggt ccc ccc gga gag 947  
Pro Ala Gly Glu Arg Gly Pro Ile Gly Pro Ala Gly Pro Pro Gly Glu  
80 85 90 95  
  
cgt ggc ggc aaa gga tct aaa ggc tcc cag ggc ccc aaa ggc tcc cgt 995  
Arg Gly Gly Lys Gly Ser Lys Gly Ser Gln Gly Pro Lys Gly Ser Arg  
96 101 106 111  
  
ggg tcc cct ggg aag ccc ggc cct cag ggc ccc agt ggg gac cca ggc 1043  
Gly Ser Pro Gly Lys Pro Gly Pro Gln Gly Pro Ser Gly Asp Pro Gly  
112 117 122 127  
  
ccc ccg ggc cca cca ggc aaa gag gga ctc ccc ggc cct cag ggc cct 1091  
Pro Pro Gly Pro Pro Gly Lys Glu Gly Leu Pro Gly Pro Gln Gly Pro  
128 133 138 143  
  
cct ggc ttc cag gga ctt cag ggc acc gtt ggg gag cct ggg gtg cct 1139  
Pro Gly Phe Gln Gly Leu Gln Gly Thr Val Gly Glu Pro Gly Val Pro  
144 149 154 159  
  
gga cct ccg gga ctg cca ggc ttg cct ggg gta cca ggc atg cca ggc 1187  
Gly Pro Arg Gly Leu Pro Gly Leu Pro Gly Val Pro Gly Met Pro Gly  
160 165 170 175

ccc aag ggc ccc ccc ggc cct cct ggc cca tca gga gcg gtg gtg ccc	1235
Pro Lys Gly Pro Pro Gly Pro Pro Gly Pro Ser Gly Ala Val Val Pro	
176 181 186 191	
ctg gcc ctg cag aat gag cca acc ccg gca ccg gag gac aat ggc tgc	1283
Leu Ala Leu Gln Asn Glu Pro Thr Pro Ala Pro Glu Asp Asn Gly Cys	
192 197 202 207	
ccg cct cac tgg aag aac ttc aca gac aaa tgc tac tat ttt tca gtt	1331
Pro Pro His Trp Lys Asn Phe Thr Asp Lys Cys Tyr Tyr Phe Ser Val	
208 213 218 223	
gag aaa gaa att ttt gag gat gca aag ctt ttc tgt gaa gac aag tct	1379
Glu Lys Glu Ile Phe Glu Asp Ala Lys Leu Phe Cys Glu Asp Lys Ser	
224 229 234 239	
tca cat ctt gtt ttc ata aac act aga gag gaa cag caa tgg ata aaa	1427
Ser His Leu Val Phe Ile Asn Thr Arg Glu Glu Gln Gln Trp Ile Lys	
240 245 250 255	
aaa cag atg gta ggg aga gag agc cac tgg atc ggc ctc aca gac tca	1475
Lys Gln Met Val Gly Arg Glu Ser His Trp Ile Gly Leu Thr Asp Ser	
256 261 266 271	
gag cgt gaa aac gaa tgg aag tgg ctg gat ggg aca tct cca gac tac	1523
Glu Arg Glu Asn Glu Trp Lys Trp Leu Asp Gly Thr Ser Pro Asp Tyr	
272 277 282 287	
aaa aat tgg aaa gct gga cag ccg gat aac tgg ggt cat ggc cat ggg	1571
Lys Asn Trp Lys Ala Gly Gln Pro Asp Asn Trp Gly His Gly His Gly	
288 293 298 303	
cca gga gaa gac tgt gct ggg ttg att tat gct ggg cag tgg aac gat	1619
Pro Gly Glu Asp Cys Ala Gly Leu Ile Tyr Ala Gly Gln Trp Asn Asp	
304 309 314 319	
ttc caa tgt gaa gac gtc aat aac ttc att tgc gaa aaa gac agg gag	1667
Phe Gln Cys Glu Asp Val Asn Asn Phe Ile Cys Glu Lys Asp Arg Glu	
320 325 330 335	
aca gta ctg tca tct gca tta taa cggactgtga tgggatcaca tgagcaaatt	1721
Thr Val Leu Ser Ser Ala Leu *	
336 341	
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aaaaaaaaaa gcaactgaaaa ccaattactg aaaaaaaatt gacagctagt gttttttacc	1841
atccgtcatt acccaaagac ttgggaacta aaatgttccc cagggtgata tgctgatttt	1901
cattgtgcac atggactgaa tcacatagat tctcctccgt cagtaaccgt gcgattatac	1961
aaattatgtc ttccaaagta tggaacactc caatcagaaa aaggttatca ttggtcggtg	2021
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aagtgttagga aaaatatgca gacatacaga tatataggcc aactattagt aataatatga 2141  
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Phe Ser Ser Ser Gln Glu Leu Gly Ala Ala Leu Ala Gln Leu Val Ala  
12 17 22 27

cag cgc gca gca tgc tgc ctg gca ggg gcc cgc gcc cgt ttc gcg ctc 146  
Gln Arg Ala Ala Cys Cys Leu Ala Gly Ala Arg Ala Arg Phe Ala Leu  
28 33 38 43

ggc ttg tcg ggc ggg agc ctc gtc tcg atg cta gcc cgc gag cta ccc 194  
Gly Leu Ser Gly Gly Ser Leu Val Ser Met Leu Ala Arg Glu Leu Pro  
44 49 54 59

gcc gcc gtc gcc cct gcc ggg cca gct agc tta gcg cgc tgg acg ctg 242  
Ala Ala Val Ala Pro Ala Gly Pro Ala Ser Leu Ala Arg Trp Thr Leu  
60 65 70 75

ggc ttc tgc gac gag cgc ctc gtg ccc ttc gat cac gcc gag agc acg 290  
Gly Phe Cys Asp Glu Arg Leu Val Pro Phe Asp His Ala Glu Ser Thr  
76 81 86 91

tac ggc ctc tac cgg acg cat ctt ctc tcc aga ctg ccg atc cca gaa 338  
Tyr Gly Leu Tyr Arg Thr His Leu Leu Ser Arg Leu Pro Ile Pro Glu  
92 97 102 107

agc cag gtg atc acc att aac ccc gag ctg cct gtg gag gag gcg gct 386  
Ser Gln Val Ile Thr Ile Asn Pro Glu Leu Pro Val Glu Glu Ala Ala  
108 113 118 123

gag gac tac gcc aag aag ctg aga cag gca ttc caa ggg gac tcc atc 434  
Glu Asp Tyr Ala Lys Lys Leu Arg Gln Ala Phe Gln Gly Asp Ser Ile  
124 129 134 139

ccg gtt ttc gac ctg ctg atc ctg ggg gtg ggc ccc gat ggt cac acc	482
Pro Val Phe Asp Leu Leu Ile Leu Gly Val Gly Pro Asp Gly His Thr	
140 145 150 155	
tgc tca ctc ttc cca gac cac ccc ctc cta cag gag cgg gag aag att	530
Cys Ser Leu Phe Pro Asp His Pro Leu Leu Gln Glu Arg Glu Lys Ile	
156 161 166 171	
gtg gct ccc atc agt gac tcc ccg aag cca ccg cca cag cgt gtg acc	578
Val Ala Pro Ile Ser Asp Ser Pro Lys Pro Pro Pro Gln Arg Val Thr	
172 177 182 187	
ctc aca cta cct gtc ctg aat gca gca cga act gtc atc ttt gtg gca	626
Leu Thr Leu Pro Val Leu Asn Ala Ala Arg Thr Val Ile Phe Val Ala	
188 193 198 203	
act gga gaa ggc aag gca gct gtt ctg aag cgc att ttg gag gac cag	674
Thr Gly Glu Gly Lys Ala Ala Val Leu Lys Arg Ile Leu Glu Asp Gln	
204 209 214 219	
gag gaa aac ccg ctg ccc gcc gcc ctg gtc cag ccc cac acc ggg aaa	722
Glu Glu Asn Pro Leu Pro Ala Ala Leu Val Gln Pro His Thr Gly Lys	
220 225 230 235	
ctg tgc tgg ttc ttg gac gag gcg gcc gcc cgc ctc ctg acc gtg ccc	770
Leu Cys Trp Phe Leu Asp Glu Ala Ala Ala Arg Leu Leu Thr Val Pro	
236 241 246 251	
ttc gag aag cat tcc act ttg tag ctggccagag ggacgccgca gctgggacca	824
Phe Glu Lys His Ser Thr Leu *	
252 257	
ggcacgcggc ccatgggggt gggccctgc tggccgccac tctccgggct ctcctttcaa	884
aaagccacgt cgtgctgctg ctggaagcca acagcctccg gccagcagcc ctaccgggg	944
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Met Ala Ala Ser Met Phe Tyr Gly Arg Leu Val Ala	



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gtg gcc acc ctt cgg aac cac cgg cct cgg acg gcc cag cgg gct gct				157
Val Ala Thr Leu Arg Asn His Arg Pro Arg Thr Ala Gln Arg Ala Ala				
13 18 23 28				
gct cag gtt ctg gga agt tct gga ttg ttt aat aac cat gga ctc caa				205
Ala Gln Val Leu Gly Ser Ser Gly Leu Phe Asn Asn His Gly Leu Gln				
29 34 39 44				
gta cag cag caa cag caa agg aat ctc tca cta cat gaa tac atg agt				253
Val Gln Gln Gln Gln Gln Arg Asn Leu Ser Leu His Glu Tyr Met Ser				
45 50 55 60				
atg gaa tta ttg caa gaa gct ggt gtc tcc gtt ccc aaa gga tat gtg				301
Met Glu Leu Leu Gln Glu Ala Gly Val Ser Val Pro Lys Gly Tyr Val				
61 66 71 76				
gca aag tca cca gat gaa gct tat gca att gcc aaa aaa tta ggt tca				349
Ala Lys Ser Pro Asp Glu Ala Tyr Ala Ile Ala Lys Lys Leu Gly Ser				
77 82 87 92				
aaa gat gtc gtg ata aag gca cag gtt tta gct ggt ggt aga gga aaa				397
Lys Asp Val Val Ile Lys Ala Gln Val Leu Ala Gly Gly Arg Gly Lys				
93 98 103 108				
gga aca ttt gaa agt ggc ctc aaa gga gga gtg aag ata gtt ttc tct				445
Gly Thr Phe Glu Ser Gly Leu Lys Gly Gly Val Lys Ile Val Phe Ser				
109 114 119 124				
cca gaa gaa gca aaa gct gtt tct tca caa atg att ggg aaa aaa ttg				493
Pro Glu Glu Ala Lys Ala Val Ser Ser Gln Met Ile Gly Lys Lys Leu				
125 130 135 140				
ttt acc aag caa acg gga gaa aag ggc aga ata tgc aat caa gta ttg				541
Phe Thr Lys Gln Thr Gly Glu Lys Gly Arg Ile Cys Asn Gln Val Leu				
141 146 151 156				
gtc tgt gag cga aaa tat ccc agg aga gaa tac tac ttt gca ata aca				589
Val Cys Glu Arg Lys Tyr Pro Arg Arg Glu Tyr Tyr Phe Ala Ile Thr				
157 162 167 172				
atg gaa agg tca ttt caa ggt cct gta tta ata gga agt tca cat ggt				637
Met Glu Arg Ser Phe Gln Gly Pro Val Leu Ile Gly Ser Ser His Gly				
173 178 183 188				
ggt gtc aac att gaa gat gtt gct gct gag act cct gaa gca ata att				685
Gly Val Asn Ile Glu Asp Val Ala Ala Glu Thr Pro Glu Ala Ile Ile				
189 194 199 204				
aaa gaa cct att gat att gaa gaa ggc atc aaa aag gaa caa gct ctc				733
Lys Glu Pro Ile Asp Ile Glu Glu Gly Ile Lys Lys Glu Gln Ala Leu				
205 210 215 220				
cag ctt gca cag aag atg gga ttt cca cct aat att gtg gaa tca gca				781
Gln Leu Ala Gln Lys Met Gly Phe Pro Pro Asn Ile Val Glu Ser Ala				
221 226 231 236				

gca gaa aac atg gtc aag ctt tac agc ctt ttt ctg aaa tac gat gca	829
Ala Glu Asn Met Val Lys Leu Tyr Ser Leu Phe Leu Lys Tyr Asp Ala	
237 242 247 252	
acc atg ata gaa ata aat cca atg gtg gaa gat tca gat gga gct gta	877
Thr Met Ile Glu Ile Asn Pro Met Val Glu Asp Ser Asp Gly Ala Val	
253 258 263 268	
ttg tgt atg gat gca aag atc aat ttt gac tct aat tca gcc tat cgc	925
Leu Cys Met Asp Ala Lys Ile Asn Phe Asp Ser Asn Ser Ala Tyr Arg	
269 274 279 284	
caa aag aaa atc ttt gat cta cag gac tgg acc cag gaa gat gaa agg	973
Gln Lys Lys Ile Phe Asp Leu Gln Asp Trp Thr Gln Glu Asp Glu Arg	
285 290 295 300	
gac aaa gat gct gct aag gca aat ctc aac tac att ggc ctc gat gga	1021
Asp Lys Asp Ala Ala Lys Ala Asn Leu Asn Tyr Ile Gly Leu Asp Gly	
301 306 311 316	
aat ata ggc tgc cta gta aat ggt gct ggt ttg gct atg gcc aca atg	1069
Asn Ile Gly Cys Leu Val Asn Gly Ala Gly Leu Ala Met Ala Thr Met	
317 322 327 332	
gat ata ata aaa ctt cat gga ggg act cca gcc aac ttc ctt gat gtt	1117
Asp Ile Ile Lys Leu His Gly Gly Thr Pro Ala Asn Phe Leu Asp Val	
333 338 343 348	
ggt ggt ggt gct aca gtc cat caa gta aca gaa gca ttt aag ctt atc	1165
Gly Gly Gly Ala Thr Val His Gln Val Thr Glu Ala Phe Lys Leu Ile	
349 354 359 364	
act tca gat aaa aag gta ctg gct att ctg gtc aac att ttt gga gga	1213
Thr Ser Asp Lys Lys Val Leu Ala Ile Leu Val Asn Ile Phe Gly Gly	
365 370 375 380	
atc atg cgc tgt gat gtt att gca cag ggt ata gtc atg gca gta aaa	1261
Ile Met Arg Cys Asp Val Ile Ala Gln Gly Ile Val Met Ala Val Lys	
381 386 391 396	
gac ttg gaa att aaa ata cct gtt gtg gta cgg tta caa ggt aca cga	1309
Asp Leu Glu Ile Lys Ile Pro Val Val Val Arg Leu Gln Gly Thr Arg	
397 402 407 412	
gtc gat gat gct aag gca ctg ata gcg gac agt gga ctt aaa ata ctt	1357
Val Asp Asp Ala Lys Ala Leu Ile Ala Asp Ser Gly Leu Lys Ile Leu	
413 418 423 428	
gct tgt gat gac ttg gat gaa gct gct aga atg gtt gta aag ctc tct	1405
Ala Cys Asp Asp Leu Asp Glu Ala Ala Arg Met Val Val Lys Leu Ser	
429 434 439 444	
gaa ata gtg acc tta gcg aag caa gca cat gtg gat gtg aaa ttt cag	1453
Glu Ile Val Thr Leu Ala Lys Gln Ala His Val Asp Val Lys Phe Gln	
445 450 455 460	

ttg cca ata tga tct gaaaacccag tggatggctg aagggtgtaa atgtgctata 1508  
 Leu Pro Ile \*  
 461

atcattaaga atactgtgtt ctgtgttatt gttctttttc ttttttagtgt gtggagattg 1568  
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 tcagaatgga ctgtttgtac gaagcatgta taatgcagtt atcttctttc tttcgtcgca 1688  
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 atcaatcact atttataaac agagctttca aacactcctc agaataattct tctaagtatt 1988  
 ttgatgaagt aactttgtaa ttatttgaac attgttttaa tcattaggaa acactgatta 2048  
 actgcaagtc ttcatgattc tgtcatatta agaaacacct gtaggtttgc ttcaaataaa 2108  
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 acgatgacca tgaggacaat gacaag atg aac gac tct gaa ggc atg gac cct 173  
 Met Asn Asp Ser Glu Gly Met Asp Pro  
 1 5  
 gag cgt ctt aag gcc ttc aac atg ttt gtg cgt ctc ttt gtg gac gag 221  
 Glu Arg Leu Lys Ala Phe Asn Met Phe Val Arg Leu Phe Val Asp Glu  
 10 15 20 25

aac ctg gac cgc atg gtg ccc atc tcc aag cag ccc aag gag aag atc	269
Asn Leu Asp Arg Met Val Pro Ile Ser Lys Gln Pro Lys Glu Lys Ile	
26 31 36 41	
cag gcc atc atc gag tcc tgc agc cgg cag ttc cct gag ttc cag gag	317
Gln Ala Ile Ile Glu Ser Cys Ser Arg Gln Phe Pro Glu Phe Gln Glu	
42 47 52 57	
cgg gcc cgc aag cgc atc cgc acg tac ctc aag tcc tgc cgt cgc atg	365
Arg Ala Arg Lys Arg Ile Arg Thr Tyr Leu Lys Ser Cys Arg Arg Met	
58 63 68 73	
aag aag aac ggc atg gag atg acc aga ccc acg cca ccc cat ctg acc	413
Lys Lys Asn Gly Met Glu Met Thr Arg Pro Thr Pro Pro His Leu Thr	
74 79 84 89	
tcg gcc atg gca gaa aac atc ctg gca gct gcc tgt gag agc gag aca	461
Ser Ala Met Ala Glu Asn Ile Leu Ala Ala Cys Glu Ser Glu Thr	
90 95 100 105	
aga aag gca gcc aag cgg atg cgt cta gag atc tac cag tcc tca cag	509
Arg Lys Ala Ala Lys Arg Met Arg Leu Glu Ile Tyr Gln Ser Ser Gln	
106 111 116 121	
gat gag ccc ata gcc ctg gac aag cag cac tcg cgg gac tcc gca gcc	557
Asp Glu Pro Ile Ala Leu Asp Lys Gln His Ser Arg Asp Ser Ala Ala	
122 127 132 137	
atc acc cac tcc acc tac tca ctg cca gcc tcc tcc tac tcc cag gac	605
Ile Thr His Ser Thr Tyr Ser Leu Pro Ala Ser Ser Tyr Ser Gln Asp	
138 143 148 153	
cct gtg tac gcc aac ggc ggc ctc aac tac agt tac cgc ggg tac ggg	653
Pro Val Tyr Ala Asn Gly Gly Leu Asn Tyr Ser Tyr Arg Gly Tyr Gly	
154 159 164 169	
gcc ttg agc agc aac ctg cag ccc cct gcc tcc ctc caa aca gga aac	701
Ala Leu Ser Ser Asn Leu Gln Pro Pro Ala Ser Leu Gln Thr Gly Asn	
170 175 180 185	
cac agt aat ggt gag tcg ggg gag gcc cgg gct ctg gct tcc cga cca	749
His Ser Asn Gly Glu Ser Gly Glu Ala Arg Ala Leu Ala Ser Arg Pro	
186 191 196 201	
gca ccc agc tgg gtc tgc aga gca gcc ctg ggc agc gga atg ggg aga	797
Ala Pro Ser Trp Val Cys Arg Ala Ala Leu Gly Ser Gly Met Gly Arg	
202 207 212 217	
ggg aag cag agg cca gtg atg gaa agg ggc tgc ctc aca gca tag gga	845
Gly Lys Gln Arg Pro Val Met Glu Arg Gly Cys Leu Thr Ala *	
218 223 228	
gcaggagggg cggntctggc acccttccac ttcacgtct tagctgggtcc ttagattgga	905
aggtgaagga gactcagttg gttaaagcaa aaacctaccg ccccttctc accgccagtg	965

acgcttgctc caacacttcc caccttcact accggcgct c

1006

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actgaacaca gatccttgag gatatggcac taatggagat ttgggggcta actccaaacc 180  
cctcactcac aaaggggagat ggaggtccag atagggcacc ctaagtcaca cagaaccagg 240  
cctcctgcac cccgttcatt gctaatccca tagcactggg ct atg agc cct ttg 294  
Met Ser Pro Leu  
1  
gga ctg gga gtc tcc atg gag tcc aac caa gcc ttc aca ggg cag ggg 342  
Gly Leu Gly Val Ser Met Glu Ser Asn Gln Ala Phe Thr Gly Gln Gly  
5 10 15 20  
tgg gag tgc ctc agc ttc ctt ctg atg ggg acc ttc ctg tca gtt tcc 390  
Trp Glu Cys Leu Ser Phe Leu Leu Met Gly Thr Phe Leu Ser Val Ser  
21 26 31 36  
cag aca gtc ctg gcc cag ctg gat gca ctg ctg gtc ttc cca ggc caa 438  
Gln Thr Val Leu Ala Gln Leu Asp Ala Leu Leu Val Phe Pro Gly Gln  
37 42 47 52  
gtg gct caa ctc tcc tgc acg ctc agc ccc cag cac gtc acc atc agg 486  
Val Ala Gln Leu Ser Cys Thr Leu Ser Pro Gln His Val Thr Ile Arg  
53 58 63 68  
gac tac ggt gtg tcc tgg tac cag cag cgg gca ggc agt gcc cct cga 534  
Asp Tyr Gly Val Ser Trp Tyr Gln Gln Arg Ala Gly Ser Ala Pro Arg  
69 74 79 84  
tat ctc ctc tac tac cgc tcg gag gag gat cac cac cgg cct gct gac 582  
Tyr Leu Leu Tyr Tyr Arg Ser Glu Glu Asp His His Arg Pro Ala Asp  
85 90 95 100  
atc ccc gat cga ttc tcg gca gcc aag gat gag gcc cac aat gcc tgt 630  
Ile Pro Asp Arg Phe Ser Ala Ala Lys Asp Glu Ala His Asn Ala Cys  
101 106 111 116  
gtc ctc acc att agt ccc gtg cag cct gaa gac gac gcg gat tac tac 678  
Val Leu Thr Ile Ser Pro Val Gln Pro Glu Asp Asp Ala Asp Tyr Tyr

117	122	127	132	
tgc tct gtt ggc tac ggc ttt agt ccc tag g ggtggggtgt gagatgggtg				729
Cys Ser Val Gly Tyr Gly Phe Ser Pro *				
133	138			
cctccccctct gcctcccatt tctgcccctg accttgggtc ccttttaaac tttctctgag				789
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aaaaa				854

<210> 738  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
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Arg Ile Glu Lys Cys Tyr Phe Cys Ser Gly Pro Ile Tyr Pro Gly His	
2 7 12 17	
ggc atg atg ttc gtc cgc aac gat tgc aag gtg ttc aga ttt tgc aaa	153
Gly Met Met Phe Val Arg Asn Asp Cys Lys Val Phe Arg Phe Cys Lys	
18 23 28 33	
tct aaa tgt cat aaa aac ttt aaa aag aag cgc aat cct cgc aaa gtt	201
Ser Lys Cys His Lys Asn Phe Lys Lys Lys Arg Asn Pro Arg Lys Val	
34 39 44 49	
agg tgg acc aaa gca ttc cgg aaa gca gct ggt aaa gag ctt aca gtg	249
Arg Trp Thr Lys Ala Phe Arg Lys Ala Ala Gly Lys Glu Leu Thr Val	
50 55 60 65	
gat aat tca ttt gaa ttt gaa aaa cgt aga aat gaa cct atc aaa tac	297
Asp Asn Ser Phe Glu Phe Glu Lys Arg Arg Asn Glu Pro Ile Lys Tyr	
66 71 76 81	
cag cga gag cta tgg aat aaa act att gat gcg atg aag aga gtt gaa	345
Gln Arg Glu Leu Trp Asn Lys Thr Ile Asp Ala Met Lys Arg Val Glu	
82 87 92 97	
gaa atc aaa cag aag cgc caa gct aaa ttt ata atg aac aga ttg aag	393
Glu Ile Lys Gln Lys Arg Gln Ala Lys Phe Ile Met Asn Arg Leu Lys	
98 103 108 113	

aaa aat aaa gag cta cag aaa gtt cag gat atc aaa gaa gtc aag caa	441
Lys Asn Lys Glu Leu Gln Lys Val Gln Asp Ile Lys Glu Val Lys Gln	
114 119 124 129	
aac atc cat ctt atc cga gcc cct ctt gca ggc aaa ggg aaa cag ttg	489
Asn Ile His Leu Ile Arg Ala Pro Leu Ala Gly Lys Gly Lys Gln Leu	
130 135 140 145	
gaa gag aaa atg gta cag cag tta caa gag gat gtg gac atg gaa gat	537
Glu Glu Lys Met Val Gln Gln Leu Gln Glu Asp Val Asp Met Glu Asp	
146 151 156 161	
gct cct taa aaatctc tgtaaccatt tcttttatgt acatttgaaa atgcccttg	593
Ala Pro *	
162	
gatacttgga actgctaaat tattttatgt tttacataag gtcacttaaa tgaaaagcga	653
ttaaaagaca tctttcctgc attgccatct acataatatc agatattacg gatggttagat	713
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aggcagcatt tgtatagtaa ctaatggcaa aaattcatgg ctagtgatgt ataaaataaa	893
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aactaacaat ttgtatggca gtgtcagata tttttatgtt agtatttcct gttttggttt	1013
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aggaatccca gcgcctttta aaagttgtta tgtgggtttt ttttaaaaag ctctgtttt	1313
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ttaaaaagta aaaaaaaaaa aaaa	1397

<210> 739  
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 <212> DNA  
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<220>  
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 <222> (268) .. (456)

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ccctggccgg gcagcccccc aacacttctc ctgccctgaa acacggctct agccaacctg 180  
ctccgctgct tcacctgaga ccgtctctgc gggggctgca cggcgccagc ccctccagcc 240  
caccagggca ttgtctcca gcccgtc atg ccc agc tgt gac ccc ggt ccg 291  
Met Pro Ser Cys Asp Pro Gly Pro  
1 5

ggc cct gcc tgc etc ccc acc aag act ttc cgc agc tat ctg ccc cgc 339  
Gly Pro Ala Cys Leu Pro Thr Lys Thr Phe Arg Ser Tyr Leu Pro Arg  
9 14 19 24

tgt cac cgc act tac agc tgt gtc cac tgc cgt gca cac ctg gcc aaa 387  
Cys His Arg Thr Tyr Ser Cys Val His Cys Arg Ala His Leu Ala Lys  
25 30 35 40

cac gat gag ctt att tcc aag tcc ttc caa ggg agc cat ggc cga gcc 435  
His Asp Glu Leu Ile Ser Lys Ser Phe Gln Gly Ser His Gly Arg Ala  
41 46 51 56

tac ctg ttt aac tcc gtg tga gt ctacctctt ccttgtgcgt gtgcttgtgc 488  
Tyr Leu Phe Asn Ser Val \*  
57 62

ttgtgtgtga gtgagtaatt ctccctctgtg gagaaagggg ggaatccatc aggtgatctt 548  
gtgccttcag tctttgctc cccttttgca aagaggggtct caatctgaag ttctcacatg 608  
gggagccggg ggagaattga aatcataacg gtggaaaaag aaggcccagg ctctattctt 668  
acaggggtgg attatcaaag gcaggggcct gccac 703

<210> 740  
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<212> DNA  
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<220>  
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<222> (312) .. (641)

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Met Ile Met Asn Ala Phe Ile Leu Leu Cys Glu Ala  
1 5 10  
ccc ttc tgc tgc cag ttc atc gag ttt gca aac aca gtg gcg gag aag 398  
Pro Phe Cys Cys Gln Phe Ile Glu Phe Ala Asn Thr Val Ala Glu Lys  
14 19 24 29  
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Val Asp Arg Leu Arg Ser Trp Gln Lys Ala Val Phe Tyr Cys Gly Met  
30 35 40 45  
gcg gtc gtt ccc atc gtc atc agc ctg acc ctg acc acg ctg ctg ggc 494  
Ala Val Val Pro Ile Val Ile Ser Leu Thr Leu Thr Thr Leu Leu Gly  
46 51 56 61  
aac gcc atc gcc ttt gct acg ggg gtg ctg tac gga ctc tct gct ctg 542  
Asn Ala Ile Ala Phe Ala Thr Gly Val Leu Tyr Gly Leu Ser Ala Leu  
62 67 72 77  
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Gly Lys Lys Gly Asp Ala Ile Ser Tyr Ala Arg Ile Gln Gln Gln Arg  
78 83 88 93  
cag cag gcg gat gag gag aag ctc gcg gag acc ctg gag ggg gag ctg 638  
Gln Gln Ala Asp Glu Glu Lys Leu Ala Glu Thr Leu Glu Gly Glu Leu  
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\*  
110  
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tctggaaata gcgactcagt atc	atg gcc agc agc ctt aat gaa gat cca	170
	Met Ala Ser Ser Leu Asn Glu Asp Pro	
	1 5	
gaa gga agc aga atc act tat gtg aaa gga gac ctt ttt gca tgc ccg		218
Glu Gly Ser Arg Ile Thr Tyr Val Lys Gly Asp Leu Phe Ala Cys Pro		
10 15 20 25		
aaa aca gac tct tta gcc cac tgt atc agt gag gat tgt cgc atg ggc		266
Lys Thr Asp Ser Leu Ala His Cys Ile Ser Glu Asp Cys Arg Met Gly		
26 31 36 41		
gct ggg ata gct gtc ctc ttt aag aag aaa ttt gga ggg gtg caa gaa		314
Ala Gly Ile Ala Val Leu Phe Lys Lys Lys Phe Gly Gly Val Gln Glu		
42 47 52 57		
ctt tta aat caa caa aag aaa tct gga gaa gtg gct gtt ctg aag aga		362
Leu Leu Asn Gln Gln Lys Lys Ser Gly Glu Val Ala Val Leu Lys Arg		
58 63 68 73		
gat ggg cga tat ata tat tac ttg att aca aag aaa agg gct tcg cac		410
Asp Gly Arg Tyr Ile Tyr Tyr Leu Ile Thr Lys Lys Arg Ala Ser His		
74 79 84 89		
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Lys	Pro	Thr	Tyr	Glu	Asn	Leu	Gln	Lys	Ser	Leu	Glu	Ala	Met	Lys	Ser	
90					95					100					105	
cat	tgt	ctg	aag	aat	gga	gtc	act	gac	ctc	tcc	atg	ccc	agg	att	gga	506
His	Cys	Leu	Lys	Asn	Gly	Val	Thr	Asp	Leu	Ser	Met	Pro	Arg	Ile	Gly	
106					111					116					121	
tgt	ggt	ctt	gat	cgt	ctg	caa	tgg	gaa	aat	gta	tct	gcg	atg	atc	gag	554
Cys	Gly	Leu	Asp	Arg	Leu	Gln	Trp	Glu	Asn	Val	Ser	Ala	Met	Ile	Glu	
122					127					132					137	
gag	gta	ttt	gag	gca	aca	gac	atc	aaa	att	act	gtg	tac	aca	ctc	tga	602
Glu	Val	Phe	Glu	Ala	Thr	Asp	Ile	Lys	Ile	Thr	Val	Tyr	Thr	Leu	*	
138					143					148					153	
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ccgggcaaac	ctacctaaa	ataggcagag	gaaagtttca	tgagaagtag	tgtgtttaac											722
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gcagggaac	cagattgtcg	ggactatgac	ctttttctcc	agtatgctac	ctgatttggt											902
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ctcaggctcc	tcctcctcgc tctccgcgc ctccgcggga ctccgcagg ccctgcaccg 180
ccgccgccag	gctageggag ctgccccggg aagctgggtg acgggttcgc ggctgccgcc 240
ggactgcggc	ctaactcggc gcctctcagt gctattgtcc ctgggcctgg ccttgagcgg 300

gtccactggg gaaggccgtg tgcgccggct ccgcggaag	atg ccg gac caa gcc	354
	Met Pro Asp Gln Ala	
	1	
cta cag cag atg ctg gac aga agt tgc tgg gtt tgt ttt gct act gat		402
Leu Gln Gln Met Leu Asp Arg Ser Cys Trp Val Cys Phe Ala Thr Asp		
6 11 16 21		
gaa gat gat aga aca gct gaa tgg gtg aga cca tgc agg tgc aga gga		450
Glu Asp Asp Arg Thr Ala Glu Trp Val Arg Pro Cys Arg Cys Arg Gly		
22 27 32 37		
tct aca aaa tgg gtt cac cag gcc tgt cta caa cgc tgg gtg gat gaa		498
Ser Thr Lys Trp Val His Gln Ala Cys Leu Gln Arg Trp Val Asp Glu		
38 43 48 53		
aag caa aga gga aac agt aca gcc aga gtg gca tgt cct cag tgc aat		546
Lys Gln Arg Gly Asn Ser Thr Ala Arg Val Ala Cys Pro Gln Cys Asn		
54 59 64 69		
gct gaa tac cta ata gtt ttt cca aaa ttg ggt cca gtg gtt tac gtc		594
Ala Glu Tyr Leu Ile Val Phe Pro Lys Leu Gly Pro Val Val Tyr Val		
70 75 80 85		
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Leu Asp Leu Ala Asp Arg Leu Ile Ser Lys Ala Cys Pro Phe Ala Ala		
86 91 96 101		
gca gga ata atg gtc ggc tct atc tat tgg aca gct gtg act tat gga		690
Ala Gly Ile Met Val Gly Ser Ile Tyr Trp Thr Ala Val Thr Tyr Gly		
102 107 112 117		
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Ala Val Thr Val Met Gln Val Val Gly His Lys Glu Gly Leu Asp Val		
118 123 128 133		
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Met Glu Arg Ala Asp Pro Leu Phe Leu Leu Ile Gly Leu Pro Thr Ile		
134 139 144 149		
cct gtc atg ctg ata tta ggc aag atg att cgc tgg gag gac tat gtg		834
Pro Val Met Leu Ile Leu Gly Lys Met Ile Arg Trp Glu Asp Tyr Val		
150 155 160 165		
ctt aga ctg tgg cgc aaa tac tcg aat aaa cta caa att tta aat agt		882
Leu Arg Leu Trp Arg Lys Tyr Ser Asn Lys Leu Gln Ile Leu Asn Ser		
166 171 176 181		
ata ttt cca ggg ata ggt tgt cct gtt cct cga att cca gct gag gcc		930
Ile Phe Pro Gly Ile Gly Cys Pro Val Pro Arg Ile Pro Ala Glu Ala		
182 187 192 197		
aat cct tta gca gat cat gtc tct gct act cga atc ttg/tgt gga gcc		978
Asn Pro Leu Ala Asp His Val Ser Ala Thr Arg Ile Leu Cys Gly Ala		
198 203 208 213		

ctt gtc ttt cct act att gct aca ata gtt ggt aaa ttg atg ttc agt	1026
Leu Val Phe Pro Thr Ile Ala Thr Ile Val Gly Lys Leu Met Phe Ser	
214 219 224 229	
agt gtt aac tct aat tta caa agg aca atc ttg ggt gga att gcg ttt	1074
Ser Val Asn Ser Asn Leu Gln Arg Thr Ile Leu Gly Gly Ile Ala Phe	
230 235 240 245	
gtt gcc ata aaa gga gca ttt aaa gtt tac ttc aaa cag cag caa tat	1122
Val Ala Ile Lys Gly Ala Phe Lys Val Tyr Phe Lys Gln Gln Gln Tyr	
246 251 256 261	
tta cga cag gca cac cgc aaa att ctg aat tat cca gaa caa gaa gaa	1170
Leu Arg Gln Ala His Arg Lys Ile Leu Asn Tyr Pro Glu Gln Glu Glu	
262 267 272 277	
gca taa aactgacttc tgggtttgtt ctgcagttct ctcacacctta tgatctgttg	1226
Ala *	
278	
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gaggacc atg ctg ggc cgg agc ctc cga gaa gtt tct gcg gca ctg aaa	169
Met Leu Gly Arg Ser Leu Arg Glu Val Ser Ala Ala Leu Lys	
1 5 10	
caa ggc caa att aca cca aca gag ctc tgt caa aaa tgt ctc tct ctt	217
Gln Gly Gln Ile Thr Pro Thr Glu Leu Cys Gln Lys Cys Leu Ser Leu	
15 20 25 30	
atc aag aag acc aag ttt cta aat gcc tac att act gtg tca gaa gag	265
Ile Lys Lys Thr Lys Phe Leu Asn Ala Tyr Ile Thr Val Ser Glu Glu	
31 36 41 46	
gtg gcc tta aaa caa gct gaa gaa tca gaa aag aga tat aag aat gga	313
Val Ala Leu Lys Gln Ala Glu Glu Ser Glu Lys Arg Tyr Lys Asn Gly	
47 52 57 62	
cag tca ctt ggg gat tta gat gga att cct att gca gta aaa gac aat	361
Gln Ser Leu Gly Asp Leu Asp Gly Ile Pro Ile Ala Val Lys Asp Asn	
63 68 73 78	
ttc agc act tct ggc att gag aca aca tgt gca tca aat atg ctg aaa	409
Phe Ser Thr Ser Gly Ile Glu Thr Thr Cys Ala Ser Asn Met Leu Lys	
79 84 89 94	
ggc tat ata cca cct tat aat gct aca gta gtt cag aag ttg ttg gat	457
Gly Tyr Ile Pro Pro Tyr Asn Ala Thr Val Val Gln Lys Leu Leu Asp	
95 100 105 110	
cag gga gct cta cta atg gga aaa aca aat tta aat gag ttt gct atg	505
Gln Gly Ala Leu Leu Met Gly Lys Thr Asn Leu Asn Glu Phe Ala Met	
111 116 121 126	
gga tct ggg agc aca gat ggt gta ttt gga cca gtt aaa aac ccc tgg	553
Gly Ser Gly Ser Thr Asp Gly Val Phe Gly Pro Val Lys Asn Pro Trp	
127 132 137 142	
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Ser Tyr Ser Lys Gln Tyr Arg Glu Lys Arg Lys Gln Asn Pro His Ser	
143 148 153 158	
gag aat gaa gat tca gac tgg ctg ata act gga gga agc tca ggt ggg	649
Glu Asn Glu Asp Ser Asp Trp Leu Ile Thr Gly Gly Ser Ser Gly Gly	
159 164 169 174	
agt gca gct gct gta tcg gcg ttc aca tgc tac gcg gct tta gga tca	697
Ser Ala Ala Ala Val Ser Ala Phe Thr Cys Tyr Ala Ala Leu Gly Ser	
175 180 185 190	
gat aca gga gga tcg acc aga aat cct gct gcc cac tgt ggg ctt gtt	745
Asp Thr Gly Gly Ser Thr Arg Asn Pro Ala Ala His Cys Gly Leu Val	
191 196 201 206	
ggc ttc aaa cca agc tat ggc tta gtt tcc cgt cat ggt ctc att ccc	793

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Leu	Val	Asn	Ser	Met	Asp	Val	Pro	Gly	Ile	Leu	Thr	Arg	Cys	Val	Asp	
223					228					233					238	
gat	gca	gca	att	gtg	ttg	ggg	gca	ctg	gcc	gga	cct	gac	ccc	agg	gac	889
Asp	Ala	Ala	Ile	Val	Leu	Gly	Ala	Leu	Ala	Gly	Pro	Asp	Pro	Arg	Asp	
239					244					249					254	
tct	acc	aca	gta	cat	gaa	cct	att	aat	aaa	cca	ttc	atg	ctt	ccc	agt	937
Ser	Thr	Thr	Val	His	Glu	Pro	Ile	Asn	Lys	Pro	Phe	Met	Leu	Pro	Ser	
255					260					265					270	
ttg	gca	gat	gtg	agc	aaa	cta	tgt	ata	gga	att	cca	aag	gaa	tat	ctt	985
Leu	Ala	Asp	Val	Ser	Lys	Leu	Cys	Ile	Gly	Ile	Pro	Lys	Glu	Tyr	Leu	
271					276					281					286	
gta	ccg	gaa	tta	tca	agt	gaa	gta	cag	tct	ctt	tgg	tcc	aaa	gct	gct	1033
Val	Pro	Glu	Leu	Ser	Ser	Glu	Val	Gln	Ser	Leu	Trp	Ser	Lys	Ala	Ala	
287					292					297					302	
gac	ctc	ttt	gag	tct	gag	ggg	gcc	aaa	gta	att	gaa	gta	tcc	ctt	cct	1081
Asp	Leu	Phe	Glu	Ser	Glu	Gly	Ala	Lys	Val	Ile	Glu	Val	Ser	Leu	Pro	
303					308					313					318	
cac	acc	agt	tat	tca	att	gtc	tgc	tac	cat	gta	ttg	tgc	aca	tca	gaa	1129
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319					324					329					334	
gtg	gca	tcg	aat	atg	gca	aga	ttt	gat	ggg	cta	caa	tat	ggg	cac	aga	1177
Val	Ala	Ser	Asn	Met	Ala	Arg	Phe	Asp	Gly	Leu	Gln	Tyr	Gly	His	Arg	
335					340					345					350	
tgt	gac	att	gat	gtg	tcc	act	gaa	gcc	atg	tat	gct	gca	acc	aga	cga	1225
Cys	Asp	Ile	Asp	Val	Ser	Thr	Glu	Ala	Met	Tyr	Ala	Ala	Thr	Arg	Arg	
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Glu	Gly	Phe	Asn	Asp	Val	Val	Arg	Gly	Arg	Ile	Leu	Ser	Gly	Asn	Phe	
367					372					377					382	
ttc	tta	tta	aaa	gaa	aac	tat	gaa	aat	tat	ttt	gtc	aaa	gca	cag	aaa	1321
Phe	Leu	Leu	Lys	Glu	Asn	Tyr	Glu	Asn	Tyr	Phe	Val	Lys	Ala	Gln	Lys	
383					388					393					398	
gtg	aga	cgc	ctc	att	gct	aat	gac	ttt	gta	aat	gct	ttt	aac	tct	gga	1369
Val	Arg	Arg	Leu	Ile	Ala	Asn	Asp	Phe	Val	Asn	Ala	Phe	Asn	Ser	Gly	
399					404					409					414	
gta	gat	gtc	ttg	cta	act	ccc	acc	acc	ttg	agt	gag	gca	gta	cca	tac	1417
Val	Asp	Val	Leu	Leu	Thr	Pro	Thr	Thr	Leu	Ser	Glu	Ala	Val	Pro	Tyr	
415					420					425					430	
ttg	gag	ttc	atc	aaa	gag	gac	aac	aga	acc	cga	agt	gcc	cag	gat	gat	1465
Leu	Glu	Phe	Ile	Lys	Glu	Asp	Asn	Arg	Thr	Arg	Ser	Ala	Gln	Asp	Asp	

431	436	441	446	
att ttt aca caa gct gta aat atg gca gga ttg cca gca gtg agt atc				1513
Ile Phe Thr Gln Ala Val Asn Met Ala Gly Leu Pro Ala Val Ser Ile				
447	452	457	462	
cct gtt gca ctc tca aac caa ggg ttg cca ata gga cta cag ttt att				1561
Pro Val Ala Leu Ser Asn Gln Gly Leu Pro Ile Gly Leu Gln Phe Ile				
463	468	473	478	
gga cgt gcg ttt tgt gac cag cag ctt ctt aca gta gcc aaa tgg ttt				1609
Gly Arg Ala Phe Cys Asp Gln Gln Leu Leu Thr Val Ala Lys Trp Phe				
479	484	489	494	
gaa aaa caa gta cag ttt cct gtt att caa ctt caa gaa ctc atg gat				1657
Glu Lys Gln Val Gln Phe Pro Val Ile Gln Leu Gln Glu Leu Met Asp				
495	500	505	510	
gat tgt tca gca gtc ctt gaa aat gaa aag tta gcc tct gtc tct cta				1705
Asp Cys Ser Ala Val Leu Glu Asn Glu Lys Leu Ala Ser Val Ser Leu				
511	516	521	526	
aaa cag taa acatatac ttacaaatta aaatgacttt taggctgggt gcagtggctc				1761
Lys Gln *				
527				
acacctgtaa tcccagcact ttgggagggc aaggcgagcg gatcatgagg tcagaagatc				1821
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<220>  
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<400> 744

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Glu Pro Tyr Met Asp Glu Asn Phe Ile Ser Arg Ala Phe Ala Thr Met	



11	16	21	26	
ggg gag acc gta atg agc gtc aaa att atc cga aac cgc ctc act ggg				148
Gly Glu Thr Val Met Ser Val Lys Ile Ile Arg Asn Arg Leu Thr Gly				
27	32	37	42	
atc cca gct ggc tac tgc ttt gta gaa ttt gca gat ttg gcc aca gct				196
Ile Pro Ala Gly Tyr Cys Phe Val Glu Phe Ala Asp Leu Ala Thr Ala				
43	48	53	58	
gag aag tgt ttg cat aaa att aat ggg aaa ccc ctt cca gga gcc aca				244
Glu Lys Cys Leu His Lys Ile Asn Gly Lys Pro Leu Pro Gly Ala Thr				
59	64	69	74	
cct gcg aaa cgt ttt aaa ctg aac tat gcc act tac ggg aaa caa cca				292
Pro Ala Lys Arg Phe Lys Leu Asn Tyr Ala Thr Tyr Gly Lys Gln Pro				
75	80	85	90	
gat aac agc cct gag tat tcc ctc ttt gtg ggg gac ctg acc ccg gac				340
Asp Asn Ser Pro Glu Tyr Ser Leu Phe Val Gly Asp Leu Thr Pro Asp				
91	96	101	106	
gtg gat gat ggc atg ctg tat gaa ttc ttc gtc aaa gtc tac ccc tcc				388
Val Asp Asp Gly Met Leu Tyr Glu Phe Phe Val Lys Val Tyr Pro Ser				
107	112	117	122	
tgt cgg gga ggc aag gtg gtt ttg gac cag aca ggc gtg tct aag ggt				436
Cys Arg Gly Gly Lys Val Val Leu Asp Gln Thr Gly Val Ser Lys Gly				
123	128	133	138	
tat ggt ttt gtg aaa ttc aca gat gaa ctg gaa cag aag cga gcc ctg				484
Tyr Gly Phe Val Lys Phe Thr Asp Glu Leu Glu Gln Lys Arg Ala Leu				
139	144	149	154	
acg gag tgc cag gga gca gtg gga ctg ggg tct aag cct gtg cgg ctg				532
Thr Glu Cys Gln Gly Ala Val Gly Leu Gly Ser Lys Pro Val Arg Leu				
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agc gtg gca atc cct aaa gcg agc cgt gta aag cca gtg gaa tat agt				580
Ser Val Ala Ile Pro Lys Ala Ser Arg Val Lys Pro Val Glu Tyr Ser				
171	176	181	186	
cag atg tac agt tat agc tac aac cag tat tat cag cag tac cag aac				628
Gln Met Tyr Ser Tyr Ser Tyr Asn Gln Tyr Tyr Gln Gln Tyr Gln Asn				
187	192	197	202	
tac tat gct cag tgg ggc tat gac cag aac aca ggc agc tac agc tac				676
Tyr Tyr Ala Gln Trp Gly Tyr Asp Gln Asn Thr Gly Ser Tyr Ser Tyr				
203	208	213	218	
agt tac ccc cag tat ggc tat acc cag agc acc atg cag aca tat gaa				724
Ser Tyr Pro Gln Tyr Gly Tyr Thr Gln Ser Thr Met Gln Thr Tyr Glu				
219	224	229	234	
gaa gtt gga gat gat gca ttg gaa gac ccc atg cca cag ctg gat gtg				772
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Met Ala Thr Ser Ile Gly Val
1 5
tcc ttc tcg gtg ggc gac ggg gtg cct gag gct gag aag aac gca ggg 162
Ser Phe Ser Val Gly Asp Gly Val Pro Glu Ala Glu Lys Asn Ala Gly
8 13 18 23
gag ccc gag aac acc tat att ctg cgg cct gtt ttc cag cag agg ttc 210
Glu Pro Glu Asn Thr Tyr Ile Leu Arg Pro Val Phe Gln Gln Arg Phe
24 29 34 39
agg ccc tct gtg gtt aaa gac tgt atc cat gct gtg ctc aag gag gaa 258
Arg Pro Ser Val Val Lys Asp Cys Ile His Ala Val Leu Lys Glu Glu
40 45 50 55
ctg gca aat gct gaa tat tct cca gaa gaa atg cct cag ctt aca aaa 306
Leu Ala Asn Ala Glu Tyr Ser Pro Glu Glu Met Pro Gln Leu Thr Lys
56 61 66 71
cat tta tca gaa aac att aaa gat aaa tta aaa gaa atg gga ttt gac 354
His Leu Ser Glu Asn Ile Lys Asp Lys Leu Lys Glu Met Gly Phe Asp
72 77 82 87
cga tac aaa atg qtq qtq caa qta qtq att qga gaa caa aga ggt gaa 402

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Gly Val Phe Met Ala Ser Arg Cys Phe Trp Asp Ala Asp Thr Asp Asn	
104 109 114 119	
tat act cat gat gtt ttc atg aat gac agt tta ttc tgc gtt gta gca	498
Tyr Thr His Asp Val Phe Met Asn Asp Ser Leu Phe Cys Val Val Ala	
120 125 130 135	
gca ttt ggc tgt ttc tac tac tga atgaatcttt gaaaagctgg taaaagacat	552
Ala Phe Gly Cys Phe Tyr Tyr *	
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gcgagcaagc tcggtggctg ggtggggttg ggcggtccgc gcgcccttca ttgaagcggc	180
ggtggccggg ctgggcgcgc gtagtggaag gcgacggcgc ggctggaaa atg cca	235
	Met Pro
	1
gtc cat tcc cga ggg gat aag aag gag acc aac cat cac gat gag atg	283
Val His Ser Arg Gly Asp Lys Lys Glu Thr Asn His His Asp Glu Met	
3 8 13 18	
gag gtg gac tac gcc gaa aat gag ggg agc agc tcc gag gac gag gac	331
Glu Val Asp Tyr Ala Glu Asn Glu Gly Ser Ser Ser Glu Asp Glu Asp	
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act gag agc tcg tcg gtc tcc gag gat gga gat agc tca gaa atg gat	379
Thr Glu Ser Ser Ser Val Ser Glu Asp Gly Asp Ser Ser Glu Met Asp	
35 40 45 50	
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Asp Glu Asp Cys Glu Arg Arg Arg Met Glu Cys Leu Asp Glu Met Ser	
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Asn Leu Glu Lys Gln Phe Thr Asp Leu Lys Asp Gln Leu Tyr Lys Glu	
67 72 77 82	
cga tta agt cag gtg gat gca aaa cta caa gaa gtc ata gct gga aaa	523
Arg Leu Ser Gln Val Asp Ala Lys Leu Gln Glu Val Ile Ala Gly Lys	
83 88 93 98	
gca cca gaa tac ttg gaa ccg ctg gca act tta cag gaa aat atg caa	571
Ala Pro Glu Tyr Leu Glu Pro Leu Ala Thr Leu Gln Glu Asn Met Gln	
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Ile Arg Thr Lys Val Ala Gly Ile Tyr Arg Glu Leu Cys Leu Glu Ser	
115 120 125 130	
gta aag aac aaa tat gaa tgt gaa att caa gct tct cgc cag cat tgt	667
Val Lys Asn Lys Tyr Glu Cys Glu Ile Gln Ala Ser Arg Gln His Cys	
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Glu Ser Glu Lys Leu Leu Leu Tyr Asp Thr Val Gln Ser Glu Leu Glu	
147 152 157 162	
gag aag ata aga agg ctt gaa gag gat agg cac agc att gat att acc	763
Glu Lys Ile Arg Arg Leu Glu Glu Asp Arg His Ser Ile Asp Ile Thr	
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Ser Glu Leu Trp Asn Asp Glu Leu Gln Ser Arg Lys Lys Arg Lys Asp	
179 184 189 194	
cct ttc tgg cct gac aaa aag aag cca gtt gtt gtt tca ggt cca tat	859
Pro Phe Trp Pro Asp Lys Lys Lys Pro Val Val Val Ser Gly Pro Tyr	
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ata gtt tat atg cta caa gat ctt gat att ctt gaa gac tgg aca aca	907
Ile Val Tyr Met Leu Gln Asp Leu Asp Ile Leu Glu Asp Trp Thr Thr	
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Ile Arg Lys Ala Met Ala Thr Leu Gly Pro His Arg Val Lys Thr Glu	
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Pro Pro Val Lys Leu Glu Lys His Leu His Ser Ala Arg Ser Glu Glu	
243 248 253 258	
gga aga cta tat tat gat ggt gaa tgg tat ata cgt gga caa aca ata	1051
Gly Arg Leu Tyr Tyr Asp Gly Glu Trp Tyr Ile Arg Gly Gln Thr Ile	
259 264 269 274	
tgt att gat aaa aaa gat gaa tgt cct aca agt gct gta att aca aca	1099
Cys Ile Asp Lys Lys Asp Glu Cys Pro Thr Ser Ala Val Ile Thr Thr	
275 280 285 290	

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 Ile Asn His Asp Glu Val Trp Phe Lys Arg Pro Asp Gly Ser Lys Ser  
 291 296 301 306

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 Lys Leu Tyr Ile Ser Gln Leu Gln Lys Gly Lys Tyr Ser Ile Lys His  
 307 312 317 322

tca taa tcatgattta agtggttatct aaatttacct tattagtgtt accaaatgta 1251  
 Ser \*  
 323

agtgccatga gagtaaaaaa atgtattcaa taacttaata ttctcactga atcatgagag 1311

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 caaccagtag cacc atg tct gtg act ggc ggg aag atg gca ccg tcc ctc 470  
 Met Ser Val Thr Gly Gly Lys Met Ala Pro Ser Leu  
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acc cag gag atc ctc agc cac ctg ggc ctg gcc agc aag act gca gcg 518  
 Thr Gln Glu Ile Leu Ser His Leu Gly Leu Ala Ser Lys Thr Ala Ala  
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tgg ggg acc ctg ggc acc ctc agg acc ttc ttg aac ttc agc gtg gac 566  
 Trp Gly Thr Leu Gly Thr Leu Arg Thr Phe Leu Asn Phe Ser Val Asp  
 29 34 39 44

aag gat gcg cag agg cta ctg agg gcc att act ggc caa ggc gtg gac	614
Lys Asp Ala Gln Arg Leu Leu Arg Ala Ile Thr Gly Gln Gly Val Asp	
45 50 55 60	
cgc agt gcc att gtg gac gtg ctg acc aac cgg agc aga gag caa agg	662
Arg Ser Ala Ile Val Asp Val Leu Thr Asn Arg Ser Arg Glu Gln Arg	
61 66 71 76	
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Gln Leu Ile Ser Arg Asn Phe Gln Glu Arg Thr Gln Gln Asp Leu Met	
77 82 87 92	
aag tct cta cag gca gca ctt tcc ggc aac ctg gag agg att gtg atg	758
Lys Ser Leu Gln Ala Ala Leu Ser Gly Asn Leu Glu Arg Ile Val Met	
93 98 103 108	
gct ctg ctg cag ccc aca gcc cag ttt gac gcc cag gaa ttg agg aca	806
Ala Leu Leu Gln Pro Thr Ala Gln Phe Asp Ala Gln Glu Leu Arg Thr	
109 114 119 124	
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Ala Leu Lys Ala Ser Asp Ser Ala Val Asp Val Ala Ile Glu Ile Leu	
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gcc act cga acc cca ccc cag ctg cag gag tgc ctg gca gtc tac aaa	902
Ala Thr Arg Thr Pro Pro Gln Leu Gln Glu Cys Leu Ala Val Tyr Lys	
141 146 151 156	
cac aat ttc cag gtg gag gct gtg gat gac atc aca tct gag acc agt	950
His Asn Phe Gln Val Glu Ala Val Asp Asp Ile Thr Ser Glu Thr Ser	
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ggc atc ttg cag gac ctg ctg ttg gcc ctg gcc aag ggg ggc cgt gac	998
Gly Ile Leu Gln Asp Leu Leu Leu Ala Leu Ala Lys Gly Gly Arg Asp	
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Ser Tyr Ser Gly Ile Ile Asp Tyr Asn Leu Ala Glu Gln Asp Val Gln	
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Ala Leu Gln Arg Ala Glu Gly Pro Ser Arg Glu Glu Thr Trp Val Pro	
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Val Phe Thr Gln Arg Asn Pro Glu His Leu Ile Arg Val Phe Asp Gln	
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Phe His Gly Asp Ala Gln Val Ala Leu Leu Gly Leu Ala Ser Val Ile	
253 258 263 268	
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221					226					231					236		
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237					242					247					252		
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Ala	*																



253

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aga gcc gaa ggc ctg aca aat taa cttctacctt taaaatttac cacagactat 901  
 Arg Ala Glu Gly Leu Thr Asn \*  
 230 235

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Leu Pro Ala Thr Leu Gln Gly Ala Thr Asp Ser Leu Gly Leu Glu Trp	
35 40 45 50	
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His Leu Pro Ser Pro Asp Pro Val Thr Val Pro Tyr Leu Ser Pro Leu	
51 56 61 66	
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Val Val Trp Lys Glu Leu Glu Ser Leu Leu Glu Asn Glu Gly Asp His	
67 72 77 82	
gca ata aca gta gca gac ttt gtg gac cat cat cca att gtt ttt tgg	404
Ala Ile Thr Val Ala Asp Phe Val Asp His His Pro Ile Val Phe Trp	
83 88 93 98	
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Asn Leu Val Trp Tyr Phe Arg Arg Leu Asp Leu Pro Ser Asn Leu Pro	
99 104 109 114	
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Gly Leu Ile Leu Ser Ser Glu His Cys Asn Lys Tyr Ser Lys Ile Pro	
115 120 125 130	
cgc cac tgt atg tct gaa gat agc aaa tat gtt tta ata caa atg tta	548
Arg His Cys Met Ser Glu Asp Ser Lys Tyr Val Leu Ile Gln Met Leu	
131 136 141 146	
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Trp Asp Asn Met Lys Leu His Gln Asp Pro Gly Gln Pro Leu Tyr Ile	
147 152 157 162	
ctc tgg aat gca cac acc caa aaa tat cca atg gtc cat tta ttg caa	644
Leu Trp Asn Ala His Thr Gln Lys Tyr Pro Met Val His Leu Leu Gln	
163 168 173 178	
aaa agt gat aac tca ttt aac cag gaa ctg ttg aaa agt atg gta aaa	692
Lys Ser Asp Asn Ser Phe Asn Gln Glu Leu Leu Lys Ser Met Val Lys	
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agc att aaa atg aat gat gtc tat gga cca atg agt cag att tta gag	740
Ser Ile Lys Met Asn Asp Val Tyr Gly Pro Met Ser Gln Ile Leu Glu	
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aca ctg aat aag tgt cca cat ttt aaa aga cag agg agt tta tac aga	788
Thr Leu Asn Lys Cys Pro His Phe Lys Arg Gln Arg Ser Leu Tyr Arg	
211 216 221 226	
gaa ata cta ttt ctc tca ctt gtg gca ctg gga aga gaa aac att gat	836
Glu Ile Leu Phe Leu Ser Leu Val Ala Leu Gly Arg Glu Asn Ile Asp	
227 232 237 242	
ata gat gct ttt gat aaa gag tac aag atg gca tac gat cgt ctc aca	884
Ile Asp Ala Phe Asp Lys Glu Tyr Lys Met Ala Tyr Asp Arg Leu Thr	

243	248	253	258	
cct agt caa gtc aag agt aca cac aac tgt gat aga cca cca agt aca				932
Pro Ser Gln Val Lys Ser Thr His Asn Cys Asp Arg Pro Pro Ser Thr				
259	264	269	274	
ggg gtg atg gaa tgt cga aaa acc ttt gga gaa cct tat ctt taa gat				980
Gly Val Met Glu Cys Arg Lys Thr Phe Gly Glu Pro Tyr Leu *				
275	280	285		
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tagactctaa atatttttttc ttcaattttt gaaaatacaa ttgttaaattg gttcaaaaaga				1100
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aagtttggga caagatatatt atctaacttc tgtgtcaaaa ttagcgacct gctatggcaa	180
tgaagaaaga aactgaattt gtcattttca cctgaagaaa a	233
atg ata gac aaa	
Met Ile Asp Lys	
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aat caa acc tgt ggt gta gga cag gat tct gtg ccc tat atg att tgt	281
Asn Gln Thr Cys Gly Val Gly Gln Asp Ser Val Pro Tyr Met Ile Cys	
5 10 15 20	
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Leu Ile His Ile Leu Glu Glu Trp Phe Gly Val Glu Gln Leu Glu Asp	
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tat ttg aat ttt gca aac tat ctc ttg tgg gtt ttt aca cca cta ata	377
Tyr Leu Asn Phe Ala Asn Tyr Leu Leu Trp Val Phe Thr Pro Leu Ile	
37 42 47 52	
ctt tta ata ctt cct tac ttt act atc ttt ctt ctc tac ctt act att	425
Leu Leu Ile Leu Pro Tyr Phe Thr Ile Phe Leu Leu Tyr Leu Thr Ile	

53	58	63	68	
att ttc tta cac att tat aag aga aag aat gta ttg aaa gaa gcc tac				473
Ile Phe Leu His Ile Tyr Lys Arg Lys Asn Val Leu Lys Glu Ala Tyr				
69	74	79	84	
tct cat aat tta tgg gat ggt gca agg aaa aca gtg gca act ctg tgg				521
Ser His Asn Leu Trp Asp Gly Ala Arg Lys Thr Val Ala Thr Leu Trp				
85	90	95	100	
gat gga cat gca gcc gtt tgg cat ggt tat gaa gtt cat gga atg gaa				569
Asp Gly His Ala Ala Val Trp His Gly Tyr Glu Val His Gly Met Glu				
101	106	111	116	
aaa ata cca gaa gat gga cca gca ctt ata att ttt tat cat gga gct				617
Lys Ile Pro Glu Asp Gly Pro Ala Leu Ile Ile Phe Tyr His Gly Ala				
117	122	127	132	
att cct ata gat ttt tac tat ttc atg gct aaa ata ttt ata cac aaa				665
Ile Pro Ile Asp Phe Tyr Tyr Phe Met Ala Lys Ile Phe Ile His Lys				
133	138	143	148	
ggc aga act tgc cga gta gta gct gat cac ttt gtc ttt aaa att cca				713
Gly Arg Thr Cys Arg Val Val Ala Asp His Phe Val Phe Lys Ile Pro				
149	154	159	164	
ggg ttt agt tta tta ctg gat gtg ttt tgt gct cta cat gga cca aga				761
Gly Phe Ser Leu Leu Leu Asp Val Phe Cys Ala Leu His Gly Pro Arg				
165	170	175	180	
gaa aaa tgt gtt gaa att ctg agg agt ggc cac ttg tta gct atc tca				809
Glu Lys Cys Val Glu Ile Leu Arg Ser Gly His Leu Leu Ala Ile Ser				
181	186	191	196	
cca ggt gga gtt cga gaa gcc cta att agt gat gaa act tat aac atc				857
Pro Gly Gly Val Arg Glu Ala Leu Ile Ser Asp Glu Thr Tyr Asn Ile				
197	202	207	212	
gta tgg ggt cat cgc aga ggc ttt gct cag gtt gca att gat gca aaa				905
Val Trp Gly His Arg Arg Gly Phe Ala Gln Val Ala Ile Asp Ala Lys				
213	218	223	228	
gtg ccc att att cct atg ttt aca caa aat att cga gaa gga ttt aga				953
Val Pro Ile Ile Pro Met Phe Thr Gln Asn Ile Arg Glu Gly Phe Arg				
229	234	239	244	
tca ctt gga gga aca agg tta ttt agg tgg ctt tat gaa aaa ttc cgc				1001
Ser Leu Gly Gly Thr Arg Leu Phe Arg Trp Leu Tyr Glu Lys Phe Arg				
245	250	255	260	
tat cca ttt gct cca atg tat gga ggt ttt cca gtg aag tta cgg acc				1049
Tyr Pro Phe Ala Pro Met Tyr Gly Gly Phe Pro Val Lys Leu Arg Thr				
261	266	271	276	
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Tyr Leu Gly Asp Pro Ile Pro Tyr Asp Pro Gln Ile Thr Ala Glu Glu				
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Met Ser Asn Lys Leu Leu Ser  
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Leu Ala Pro Glu Gln Pro Val Thr Leu Arg Ala Ser Leu Arg Asp Glu  
88 93 98 103

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Lys Gly Ala Leu Phe Gln Ala His Ala Arg Tyr Arg Ala Asp Thr Leu  
104 109 114 119

ggc gag ctg gac ctg gag cgc gcg ccc gcg ctg ggc ggc agc ttc gcg 675  
Gly Glu Leu Asp Leu Glu Arg Ala Pro Ala Leu Gly Gly Ser Phe Ala  
120 125 130 135

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Gly Leu Glu Pro Met Gly Leu Leu Trp Ala Leu Glu Pro Glu Lys Pro  
136 141 146 151

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Leu Val Arg Leu Val Lys Arg Asp Val Arg Thr Pro Leu Ala Val Glu  
152 157 162 167

ctg gag gtg ctg gat ggc cac gac ccc gac ccc ggg cgg ctg ctg tgc 819  
Leu Glu Val Leu Asp Gly His Asp Pro Asp Pro Gly Arg Leu Leu Cys  
168 173 178 183

cag acg cgg cac gag cgc tac ttc ctc ccg ccc ggg gtg cgg cgc gag 867  
Gln Thr Arg His Glu Arg Tyr Phe Leu Pro Pro Gly Val Arg Arg Glu  
184 189 194 199

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Pro Val Arg Val Gly Arg Val Arg Gly Thr Leu Phe Leu Pro Pro Glu



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cgc tac aag ggc gag acc ctg ccc cct gtg ggc gtc aac aga aat cgc Arg Tyr Lys Gly Glu Thr Leu Pro Pro Val Gly Val Asn Arg Asn Arg 328 333 338 343				1299
atc aag gtg acc aaa gat ggc tat gca gac att gtg gat gtc ctg aac Ile Lys Val Thr Lys Asp Gly Tyr Ala Asp Ile Val Asp Val Leu Asn 344 349 354 359				1347
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aag agt gag ttc tat gct aat gag gcc tgt aaa cgc ttg cag gcc cat Lys Ser Glu Phe Tyr Ala Asn Glu Ala Cys Lys Arg Leu Gln Ala His 392 397 402 407				1491
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tgagtgcaga tctgg atg gag att tgt gaa ggc aag gag att gaa gac tcg	171
Met Glu Ile Cys Glu Gly Lys Glu Ile Glu Asp Ser	
1 5 10	
agg cca aga att cgg cac gag ggg gca ctt ctt tgt gaa ttc tgg gga	219
Arg Pro Arg Ile Arg His Glu Gly Ala Leu Leu Cys Glu Phe Trp Gly	
13 18 23 28	
gac att gcc aag gaa ttt tac tgg aag act cca tgc cct ggc cca ttc	267
Asp Ile Ala Lys Glu Phe Tyr Trp Lys Thr Pro Cys Pro Gly Pro Phe	
29 34 39 44	
ctt cgg tac aac ttt gat gtg act aaa ggg aaa atc ttc att gag tgg	315
Leu Arg Tyr Asn Phe Asp Val Thr Lys Gly Lys Ile Phe Ile Glu Trp	
45 50 55 60	
atg aaa gga gca act acc aac atc tgc tac aat gta ctg gat cga aat	363
Met Lys Gly Ala Thr Thr Asn Ile Cys Tyr Asn Val Leu Asp Arg Asn	
61 66 71 76	
gtc cat gag aaa aag ctt gga gat aaa gtt gct ttt tac tgg gag ggc	411

Val	His	Glu	Lys	Lys	Leu	Gly	Asp	Lys	Val	Ala	Phe	Tyr	Trp	Glu	Gly		
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Asn	Glu	Pro	Gly	Glu	Thr	Thr	Gln	Ile	Thr	Tyr	His	Gln	Leu	Leu	Val		
93					98					103					108		
caa	gtg	tgt	cag	ttc	agc	aat	gtt	ctt	cga	aaa	cag	ggc	att	cac	aag	507	
Gln	Val	Cys	Gln	Phe	Ser	Asn	Val	Leu	Arg	Lys	Gln	Gly	Ile	His	Lys		
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Ala	Met	Leu	Ala	Cys	Ala	Arg	Ile	Gly	Ala	Leu	His	Ser	Ile	Val	Phe		
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Lys	Gly	Phe	Pro	Val	Arg	Cys	Cys	Ile	Val	Val	Lys	His	Leu	Gly	Arg		
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Trp	Cys	Asp	Ala	Glu	Asp	Pro	Leu	Phe	Ile	Leu	Tyr	Thr	Ser	Gly	Ser		
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Thr	Gly	Lys	Pro	Lys	Gly	Val	Val	His	Thr	Val	Gly	Gly	Tyr	Met	Leu		
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Tyr	Val	Ala	Thr	Thr	Phe	Lys	Tyr	Val	Phe	Asp	Phe	His	Ala	Glu	Asp		

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Val Phe Trp Cys Thr Ala Asp Ile Gly Trp Ile Thr Gly His Ser Tyr				
317	322	327	332	
gtc acc tat ggg cca ctg gcc aat ggt gcc acc agt gtt ttg ttt gag				1179
Val Thr Tyr Gly Pro Leu Ala Asn Gly Ala Thr Ser Val Leu Phe Glu				
333	338	343	348	
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Gly Ile Pro Thr Tyr Pro Asp Val Asn Arg Leu Trp Ser Ile Val Asp				
349	354	359	364	
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Lys Tyr Lys Val Thr Lys Phe Tyr Thr Ala Pro Thr Ala Ile Arg Leu				
365	370	375	380	
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Leu Met Lys Phe Gly Asp Glu Pro Val Thr Lys His Ser Arg Ala Ser				
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cta tgg tac cac cgg gtg gta ggt gcc cag cgc tgc ccc atc gtg gac				1419
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413	418	423	428	
acc ttc tgg caa aca gag aca ggt ggc cac atg ttg act ccc ctt cct				1467
Thr Phe Trp Gln Thr Glu Thr Gly Gly His Met Leu Thr Pro Leu Pro				
429	434	439	444	
ggg gcc aca ccc atg aaa ccc ggt tct gct act ttc cca ttc ttt ggt				1515
Gly Ala Thr Pro Met Lys Pro Gly Ser Ala Thr Phe Pro Phe Phe Gly				
445	450	455	460	
gta gct cct gca atc ctg aat gag tcc ggg gaa gag ttg gaa ggt gaa				1563
Val Ala Pro Ala Ile Leu Asn Glu Ser Gly Glu Glu Leu Glu Gly Glu				
461	466	471	476	
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477	482	487	492	
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493	498	503	508	
ttt cct gga tac tat gtt aca gga gat ggc tgc cag cgg gac cag gat				1707
Phe Pro Gly Tyr Tyr Val Thr Gly Asp Gly Cys Gln Arg Asp Gln Asp				
509	514	519	524	
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Gly Tyr Tyr Trp Ile Thr Gly Arg Ile Asp Asp Met Leu Asn Val Ser				
525	530	535	540	

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Glu Ala Val Ala Glu Ala Ala Val Val Gly His Pro His Pro Val Lys	
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Ser Pro Lys Leu Thr Glu Glu Leu Lys Lys Gln Ile Arg Glu Lys Ile	
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Gly Pro Ile Ala Thr Pro Asp Tyr Ile Gln Asn Ala Pro Gly Leu Pro	
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Lys Thr Arg Ser Gly Lys Ile Met Arg Arg Val Leu Arg Lys Ile Ala	
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Gln Asn Asp His Asp Leu Gly Asp Met Ser Thr Val Ala Asp Pro Ser	
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ttatgctgac attccagc atg aat ctg gta gac ctg tgg tta acc cgt tcc	531
Met Asn Leu Val Asp Leu Trp Leu Thr Arg Ser	
1 5	
ctc tcc atg tgt ctc ctc cta caa agt ttt gtt ctt atg ata ctg tgc	579
Leu Ser Met Cys Leu Leu Leu Gln Ser Phe Val Leu Met Ile Leu Cys	
12 17 22 27	
ttt cat tct gcc agt atg tgt ccc aag ggc tgt ctt tgt tct tcc tct	627
Phe His Ser Ala Ser Met Cys Pro Lys Gly Cys Leu Cys Ser Ser Ser	
28 33 38 43	
ggg ggt tta aat gtc acc tgt agc aat gca aat ctc aag gaa ata cct	675
Gly Gly Leu Asn Val Thr Cys Ser Asn Ala Asn Leu Lys Glu Ile Pro	
44 49 54 59	
aga gat ctt cct cct gaa aca gtc tta ctg tat ctg gac tcc aat cag	723
Arg Asp Leu Pro Pro Glu Thr Val Leu Leu Tyr Leu Asp Ser Asn Gln	
60 65 70 75	
atc aca tct att ccc aat gaa att ttt aag gac ctc cat caa ctg aga	771
Ile Thr Ser Ile Pro Asn Glu Ile Phe Lys Asp Leu His Gln Leu Arg	
76 81 86 91	
gtt ctc aac ctg tcc aaa aat ggc att gag ttt atc gat gag cat gcc	819
Val Leu Asn Leu Ser Lys Asn Gly Ile Glu Phe Ile Asp Glu His Ala	

92	97	102	107	
ttc aaa gga gta gct	gaa acc ttg cag act	ctg gac ttg tcc gac aat		867
Phe Lys Gly Val Ala	Glu Thr Leu Gln Thr	Leu Asp Leu Ser Asp Asn		
108	113	118	123	
cgg att caa agt gtg	cac aaa aat gcc ttc	aat aac ctg aag gcc agg		915
Arg Ile Gln Ser Val	His Lys Asn Ala Phe	Asn Asn Leu Lys Ala Arg		
124	129	134	139	
gcc aga att gcc aac	aac ccc tgg cac tgc	gac tgt act cta cag caa		963
Ala Arg Ile Ala Asn	Asn Pro Trp His Cys	Asp Cys Thr Leu Gln Gln		
140	145	150	155	
gtt ctg agg agc atg	gcg tcc aat cat gag	aca gcc cac aac gtg atc		1011
Val Leu Arg Ser Met	Ala Ser Asn His Glu	Thr Ala His Asn Val Ile		
156	161	166	171	
tgt aaa acg tcc gtg	ttg gat gaa cat gct	ggc aga cca ttc ctc aat		1059
Cys Lys Thr Ser Val	Leu Asp Glu His Ala	Gly Arg Pro Phe Leu Asn		
172	177	182	187	
gct gcc aac gac gct	gac ctt tgt aac ctc	cct aaa aaa act acc gat		1107
Ala Ala Asn Asp Ala	Asp Leu Cys Asn Leu	Pro Lys Lys Thr Thr Asp		
188	193	198	203	
tat gcc atg ctg gtc	acc atg ttt ggc tgg	ttc act atg gtg atc tca		1155
Tyr Ala Met Leu Val	Thr Met Phe Gly Trp	Phe Thr Met Val Ile Ser		
204	209	214	219	
tat gtg gta tat tat	gtg agg caa aat cag	gag gat gcc cgg aga cac		1203
Tyr Val Val Tyr Tyr	Val Arg Gln Asn Gln	Glu Asp Ala Arg Arg His		
220	225	230	235	
ctc gaa tac ttg aaa	tcc ctg cca agc agg	cag aag aaa gca gat gaa		1251
Leu Glu Tyr Leu Lys	Ser Leu Pro Ser Arg	Gln Lys Lys Ala Asp Glu		
236	241	246	251	
cct gat gat att agc	act gtg gta tag tgtcc	aaactgactg tcattgagaa		1303
Pro Asp Asp Ile Ser	Thr Val Val *			
252	257			
agaaagaaag tagtttgoga	ttgcagtaga aataagtgg	ttactttctcc catccattgt		1363
aaacatttga aactttgtat	ttcagtttct tttgaattat	gccactgctg aacttttaac		1423
aaacactaca acataaataa	tttgagttaa ggtgatccac	cccttaattg taccctccgat		1483
ggtatatttc tgagtaagct	actatctgaa cattagttag	atccatctca ctatttaata		1543
atgaaattta tttttttaat	ttaaaagcaa ataaaagctt	aactttgaac catggaaaaa		1603
aaaaaaa				1610

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 <211> 1263  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (58)..(1221)

<400> 755

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atg gtg cat tgc agt tgc gtg ttg ttc aga aag tat gga aat ttc atc	105					
Met Val His Cys Ser Cys Val Leu Phe Arg Lys Tyr Gly Asn Phe Ile						
1 5 10 15						
gat aag cta aga ctc ttc acc agg gga gga tcc ggt gga atg ggt tat	153					
Asp Lys Leu Arg Leu Phe Thr Arg Gly Gly Ser Gly Gly Met Gly Tyr						
17 22 27 32						
cct cgt tta ggt gga gaa ggt gga aaa ggt ggt gat gtc tgg gtt gta	201					
Pro Arg Leu Gly Gly Glu Gly Gly Lys Gly Gly Asp Val Trp Val Val						
33 38 43 48						
gcc cac aac aga atg act tta aaa caa ctt aaa gac agg tat cct cgg	249					
Ala His Asn Arg Met Thr Leu Lys Gln Leu Lys Asp Arg Tyr Pro Arg						
49 54 59 64						
aaa cgg ttt gtg gct gga gta gga gca aac agc aaa att agt gca ctg	297					
Lys Arg Phe Val Ala Gly Val Gly Ala Asn Ser Lys Ile Ser Ala Leu						
65 70 75 80						
aaa ggc tcc aaa gga aaa gac tgg gaa atc cct gtg cct gtg ggt att	345					
Lys Gly Ser Lys Gly Lys Asp Trp Glu Ile Pro Val Pro Val Gly Ile						
81 86 91 96						
tca gta act gat gaa aat ggt aaa att ata gga gaa ctc aat aaa gaa	393					
Ser Val Thr Asp Glu Asn Gly Lys Ile Ile Gly Glu Leu Asn Lys Glu						
97 102 107 112						
aat gac aga att ttg gta gct caa gga ggt ctt ggt ggt aaa tta ctt	441					
Asn Asp Arg Ile Leu Val Ala Gln Gly Gly Leu Gly Gly Lys Leu Leu						
113 118 123 128						
aca aat ttc tta cca ttg aaa ggc cag aaa cga ata att cac ctt gat	489					
Thr Asn Phe Leu Pro Leu Lys Gly Gln Lys Arg Ile Ile His Leu Asp						
129 134 139 144						
cta aaa ctt ata gct gat gta ggc cta gta gga ttc cca aat gct gga	537					
Leu Lys Leu Ile Ala Asp Val Gly Leu Val Gly Phe Pro Asn Ala Gly						
145 150 155 160						
aaa tcc tct ttg cta agt tgt gtt tct cat gca aaa cct gca att gca	585					
Lys Ser Ser Leu Leu Ser Cys Val Ser His Ala Lys Pro Ala Ile Ala						
161 166 171 176						
gat tac gca ttt aca aca tta aag cct gaa ctt gga aag ata atg tac	633					
Asp Tyr Ala Phe Thr Thr Leu Lys Pro Glu Leu Gly Lys Ile Met Tyr						



177	182	187	192	
agt gat ttc aaa cag	ata tca gta gct gat	ctt ccg ggt tta ata	gaa	681
Ser Asp Phe Lys Gln	Ile Ser Val Ala Asp	Leu Pro Gly Leu Ile	Glu	
193	198	203	208	
gga gca cat atg aac	aaa gga atg ggc cac	aaa ttc ctc aag cat	ata	729
Gly Ala His Met Asn	Lys Gly Met Gly His	Lys Phe Leu Lys His	Ile	
209	214	219	224	
gaa aga act aga caa	cta ctt ttt gtt gtt	gat att tct gga ttt	cag	777
Glu Arg Thr Arg Gln	Leu Leu Phe Val Val	Asp Ile Ser Gly Phe	Gln	
225	230	235	240	
ctt tct tct cac act	caa tac agg aca gct	ttt gaa acc ata ata	ctg	825
Leu Ser Ser His Thr	Gln Tyr Arg Thr Ala	Phe Glu Thr Ile Ile	Leu	
241	246	251	256	
ctt aca aaa gag ttg	gaa ttg tac aaa gag	gaa ctt cag aca aaa	cct	873
Leu Thr Lys Glu Leu	Glu Leu Tyr Lys Glu	Glu Leu Gln Thr Lys	Pro	
257	262	267	272	
gca ctc ttg gca gtt	aat aaa atg gac ttg	cca gat gcc caa gat	aag	921
Ala Leu Leu Ala Val	Asn Lys Met Asp Leu	Pro Asp Ala Gln Asp	Lys	
273	278	283	288	
ttc cat gaa ttg atg	agc cag ctc cag aat	cct aaa gat ttt ctg	cat	969
Phe His Glu Leu Met	Ser Gln Leu Gln Asn	Pro Lys Asp Phe Leu	His	
289	294	299	304	
tta ttt gaa aaa aac	atg att cca gag agg	act gta gag ttc caa	cat	1017
Leu Phe Glu Lys Asn	Met Ile Pro Glu Arg	Thr Val Glu Phe Gln	His	
305	310	315	320	
atc atc ccc ata tct	gca gtt act gga gaa	gga atc gaa gaa tta	aag	1065
Ile Ile Pro Ile Ser	Ala Val Thr Gly Glu	Gly Ile Glu Glu Leu	Lys	
321	326	331	336	
aat tgt ata aga aag	tca ctg gat gaa cag	gcc aac cag gaa aat	gat	1113
Asn Cys Ile Arg Lys	Ser Leu Asp Glu Gln	Ala Asn Gln Glu Asn	Asp	
337	342	347	352	
gca ctt cat aag aaa	cag ttg ctt aat ttg	tggtt att tct gat aca	atg	1161
Ala Leu His Lys Lys	Gln Leu Leu Asn Leu	Trp Ile Ser Asp Thr	Met	
353	358	363	368	
tct tct act gag cca	cca tca aag cat gct	gtt act act tcc aaa	atg	1209
Ser Ser Thr Glu Pro	Pro Ser Lys His Ala	Val Thr Thr Ser Lys	Met	
369	374	379	384	
gat ata att taa atatattaaa	aatggtattg atggaacagt	aaaaaaaaaa aa		1263
Asp Ile Ile *				
385				

<210> 756  
 <211> 1861  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (39)..(740)

<400> 756  
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 Met Glu Gly Gly Gly  
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ggt ata ccc cta gaa aca ctt aaa gaa gaa agt cag tca aga cat gtt 101  
 Gly Ile Pro Leu Glu Thr Leu Lys Glu Glu Ser Gln Ser Arg His Val  
 6 11 16 21

cta cct gca agt ttt gaa gtc aac agt ttg cag aaa agc aac tgg ggg 149  
 Leu Pro Ala Ser Phe Glu Val Asn Ser Leu Gln Lys Ser Asn Trp Gly  
 22 27 32 37

ttc tta ctt act ggg ctt gtg ggt ggc acc ctg gtg gct gtg tac gct 197  
 Phe Leu Leu Thr Gly Leu Val Gly Gly Thr Leu Val Ala Val Tyr Ala  
 38 43 48 53

gta gcc acg cag ttt gta acg cca gcc ctt cga aaa gtc tgt ttg cca 245  
 Val Ala Thr Pro Phe Val Thr Pro Ala Leu Arg Lys Val Cys Leu Pro  
 54 59 64 69

ttt gta cct gca act atg aag cag att gaa aat gtt gtg aaa atg ttg 293  
 Phe Val Pro Ala Thr Met Lys Gln Ile Glu Asn Val Val Lys Met Leu  
 70 75 80 85

cga tgc cga aga gga tcc ctt gtg gac atc ggt agt ggg gac gga cgc 341  
 Arg Cys Arg Arg Gly Ser Leu Val Asp Ile Gly Ser Gly Asp Gly Arg  
 86 91 96 101

att gtc ata gcg gct gcg aag aaa ggg ttc aca gca gtt ggt tat gaa 389  
 Ile Val Ile Ala Ala Ala Lys Lys Gly Phe Thr Ala Val Gly Tyr Glu  
 102 107 112 117

tta aac cca tgg cta gtt tgg tat tcc aga tac cgc gct tgg cga gaa 437  
 Leu Asn Pro Trp Leu Val Trp Tyr Ser Arg Tyr Arg Ala Trp Arg Glu  
 118 123 128 133

ggt gtg cat gga tct gcc aaa ttt tat att tca gat ttg tgg aag gtt 485  
 Gly Val His Gly Ser Ala Lys Phe Tyr Ile Ser Asp Leu Trp Lys Val  
 134 139 144 149

act ttt tcg cag tac tcg aac gtt gtt att ttc ggt gtg cct cag atg 533  
 Thr Phe Ser Gln Tyr Ser Asn Val Val Ile Phe Gly Val Pro Gln Met  
 150 155 160 165

atg ctg cag ttg gag aag aaa ctt gaa cgt gaa ctt gag gat gat gca 581  
 Met Leu Gln Leu Glu Lys Lys Leu Glu Arg Glu Leu Glu Asp Asp Ala

166	171	176	181	
cga gtt att gct tgc cgg ttc cct ttc cca cat tgg act cca gac cac				629
Arg Val Ile Ala Cys Arg Phe Pro Phe Pro His Trp Thr Pro Asp His				
182	187	192	197	
gtc acg ggg gag ggg ata gac aca gtg tgg gca tat gat gca agc act				677
Val Thr Gly Glu Gly Ile Asp Thr Val Trp Ala Tyr Asp Ala Ser Thr				
198	203	208	213	
ttt aga ggc cgt gaa aag agg ccc tgt aca tgc atg cat ttc cag ctg				725
Phe Arg Gly Arg Glu Lys Arg Pro Cys Thr Ser Met His Phe Gln Leu				
214	219	224	229	
ccc att caa gca taa actttactgg gagtggtttt ctgaaatatt gtagtcttcc				780
Pro Ile Gln Ala *				
230				
ctgatcttgt agagacttac agctgtgtcc ttagcaaagg agcataattg tctttggttt				840
ggaatgagaa attactatta ctttccttaa ctgttgagaa aaacaaacga agaaaaacag				900
gtagatttaa aatctgcttt tgatgctatt ttcttaaaaa ttgtacttac tgcctttcca				960
tgcacctgga tgcataaaaa gatgaataag tgatgggtcat gggttatgggt agggaaataa				1020
gatgccaaata gctcttcaca ttataaacia tatggcttaa tgcctcgata aggagaaatg				1080
atTTTTaaag acagtatata ttaccaactg tttgtagtat cctataactt tgttcatact				1140
taagttgtat ctctttcctt tttgtacttc atggcaaaat taattttcta aaggattcag				1200
agaggcgttt atattttata acattttatta gaaataattt gttccaccac tagattactg				1260
tatttttatgg aatctaagct gtatatgtgt acatttgtat acatgtatgt gtaaatgtaa				1320
gcctgacgtg gggttcagatt ccagttttgt catcagcaag aggcctcgga cccatgactt				1380
actgcctctg agccttggct ttctgtgtat ctctgccact gggataatgg tacacataac				1440
agtggagtgg ggatcaattt ctaaaaactca tggcacctag tctttggtcc ataaatgggtg				1500
tttgttattt tagacactga gaaaaatctt attcacagaa gttgcagatt atttctgcta				1560
gtcacttttt tatttcttga gagctgccac tcatttaata tttctcattt atgagaagag				1620
acttgactga tttagataaa agacgaatta agggaaaacct ttgaacgtga gtagacaagc				1680
ttcatatata tgtaaagtga atattgaatg gtagcttgag tcattcgtac ttatcacaga				1740
aaagaattga actcccagtc atacacctgt aactgaaata ccaaactgtc ttaatggaga				1800
tgtaatgaag taagttggtc acatctttta ctaaacttat aaaaattgga aaaaaaaaaa				1860
a				1861

<210> 757  
 <211> 1191  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (135)..(647)

<220>  
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 <222> (1)...(1191)  
 <223> n = a,t,c or g

<400> 757  
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 gggtegaccc acgcgtccgg cttegagcgt ggctcgtggg ttttccgtga agtcgcggtg 120  
 cagcgggtggg cggc atg tct gtg gcc ggt ggg gag att cgt ggg gac acg 170  
 Met Ser Val Ala Gly Gly Glu Ile Arg Gly Asp Thr  
 1 5 10  
 ggg gga gag gac act gct gct ccc ggc cgg ttc agc ttc agc ccg gag 218  
 Gly Gly Glu Asp Thr Ala Ala Pro Gly Arg Phe Ser Phe Ser Pro Glu  
 13 18 23 28  
 ccc acg ctc gag gac atc cgc cgc ctc cat gct gag ttt gct gcg gaa 266  
 Pro Thr Leu Glu Asp Ile Arg Arg Leu His Ala Glu Phe Ala Ala Glu  
 29 34 39 44  
 cga gac tgg gaa cag ttc cat cag cct cgg aat ctc ctc ctg gcc ttg 314  
 Arg Asp Trp Glu Gln Phe His Gln Pro Arg Asn Leu Leu Leu Ala Leu  
 45 50 55 60  
 gtt ggg gaa gtg ggg gag ctg gca gaa ctc ttt cag tgg aaa acc gat 362  
 Val Gly Glu Val Gly Glu Leu Ala Glu Leu Phe Gln Trp Lys Thr Asp  
 61 66 71 76  
 ggg gaa cct ggc ccc caa ggc tgg tcc ccc agg gaa cgg gca gcc ctt 410  
 Gly Glu Pro Gly Pro Gln Gly Trp Ser Pro Arg Glu Arg Ala Ala Leu  
 77 82 87 92  
 caa gag gag ctt agt gac gtc ctc atc tac ctg gtg gca tta gca gcc 458  
 Gln Glu Glu Leu Ser Asp Val Leu Ile Tyr Leu Val Ala Leu Ala Ala  
 93 98 103 108  
 cgc tgc cgt gtg gat ctg ccg cta gca gtg ctc tcc aaa atg gac atc 506  
 Arg Cys Arg Val Asp Leu Pro Leu Ala Val Leu Ser Lys Met Asp Ile  
 109 114 119 124  
 aac cgg cga cgc tac cca gcc cat ctg gcc cgc agc tct tcc cgc aag 554  
 Asn Arg Arg Arg Tyr Pro Ala His Leu Ala Arg Ser Ser Ser Arg Lys  
 125 130 135 140



31	36	41	46	
ctc ttc atg gca gca gag atc gtt aca gac att ttt atc tcc tgg ttc				372
Leu Phe Met Ala Ala Glu Ile Val Thr Asp Ile Phe Ile Ser Trp Phe				
47	52	57	62	
cct ttc tac tat gag atc aag atg gcc ttc gtg ctg tgg ctg ctc tca				420
Pro Phe Tyr Tyr Glu Ile Lys Met Ala Phe Val Leu Trp Leu Leu Ser				
63	68	73	78	
ccc tac acc aag ggc gcc agc ctg ctt tac cgc aag ttt gtc cac ccg				468
Pro Tyr Thr Lys Gly Ala Ser Leu Leu Tyr Arg Lys Phe Val His Pro				
79	84	89	94	
tcc ctg tcc cgc cat gag aag gag atc gac gcg tac atc gtg cag gcc				516
Ser Leu Ser Arg His Glu Lys Glu Ile Asp Ala Tyr Ile Val Gln Ala				
95	100	105	110	
aag gag cgc agc tac gag acc gtg ctc agc ttc ggg aag cgg ggc ctc				564
Lys Glu Arg Ser Tyr Glu Thr Val Leu Ser Phe Gly Lys Arg Gly Leu				
111	116	121	126	
aac att gcc gcc tcc gct gct gtg cag gct gcc acc aag agt cag ggg				612
Asn Ile Ala Ala Ser Ala Ala Val Gln Ala Ala Thr Lys Ser Gln Gly				
127	132	137	142	
gcg ctg gcc ggc agg ctg cgg agc ttc tcc atg cag gac ctg cgc tcc				660
Ala Leu Ala Gly Arg Leu Arg Ser Phe Ser Met Gln Asp Leu Arg Ser				
143	148	153	158	
atc tct gac gca cct gcc cct gcc tac cat gac ccc ctc tac ctg gag				708
Ile Ser Asp Ala Pro Ala Pro Ala Tyr His Asp Pro Leu Tyr Leu Glu				
159	164	169	174	
gac cag gtg tcc cac cgg agg cca ccc att ggg tac cgg gcc ggg ggc				756
Asp Gln Val Ser His Arg Arg Pro Pro Ile Gly Tyr Arg Ala Gly Gly				
175	180	185	190	
ctg cag gac agc gac acc gag gat gag tgt tgg tca gat act gag gca				804
Leu Gln Asp Ser Asp Thr Glu Asp Glu Cys Trp Ser Asp Thr Glu Ala				
191	196	201	206	
gtc ccc cgg gcg cca gcc cgg ccc cga gag aag ccc cta atc cgc agc				852
Val Pro Arg Ala Pro Ala Arg Pro Arg Glu Lys Pro Leu Ile Arg Ser				
207	212	217	222	
cag agc ctg cgt gtg gtc aag agg aag cca ccg gtg cgg gag ggc acc				900
Gln Ser Leu Arg Val Val Lys Arg Lys Pro Pro Val Arg Glu Gly Thr				
223	228	233	238	
tcg cgc tcc ctg aag gtt cgg acg agg aaa aag act gtg ccc tca gac				948
Ser Arg Ser Leu Lys Val Arg Thr Arg Lys Lys Thr Val Pro Ser Asp				
239	244	249	254	
gtg gac agc tag ggt ctgctgcac tgcccccttc ttacctcgtg ccctgcaggg				1003
Val Asp Ser *				
255				

ctccagggct atttggaggg accttgggct gcacatctgg cctgcctgca ccagctgcct 1063  
 gggccccacc ctctgactc ctgctgatgg ttaagggccg ggagcagatg ctgccaaggc 1123  
 cacatgcagg gatgcacca caatgtacca aagcaggctg ggcccagggt tctattttatt 1183  
 gccttgcctc gccctctccc ttccccgggt gtgggacaag agccctccct gaacccctgc 1243  
 aaccctccct gaacccctgc aaatgaaacc aaacgtccac ctgggtgtgt tcattccttc 1303  
 ctgtccttca aagtacttga tagcctttca taaggcctgg cacatgtgtc ctggttgtgt 1363  
 gtgtgtgtgt tggtagtgta ggtcagggtt gcgagtgttt tgataaataa atacataaag 1423  
 gggaaaaaaaa aaaaaa 1438

<210> 759  
 <211> 2045  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (381) .. (1760)

<400> 759  
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 cccagcccat cgctctggcc ccgttctggc cctgcagggt ggtggttggg acgttgaaat 180  
 gagcgcgcga gtggtacgtt ctctctccgc gtcacgccc cctcctcac cgtgtttccc 240  
 gccaggacca tcagcacgtg cccatcgaca tccagaccag caagctgctc gattggctgg 300  
 tggacagaag gcactgcagc ctgaaatggc agagtctggt gctgacgac cgcgagaaga 360  
 tcaatgctgc catccaggac atg cca gag agc gaa gag atc gcc cag ctg 410  
 Met Pro Glu Ser Glu Glu Ile Ala Gln Leu  
 1 5  
 ctg tct ggg tcc tac att cac tac ttt cac tgc cta aga atc ctg gac 458  
 Leu Ser Gly Ser Tyr Ile His Tyr Phe His Cys Leu Arg Ile Leu Asp  
 11 16 21 26  
 ott ctc aaa ggc aca gag gcc tcc acg aag aat att ttt gtc cga tac 506  
 Leu Leu Lys Gly Thr Glu Ala Ser Thr Lys Asn Ile Phe Val Arg Tyr  
 27 32 37 42  
 tct tca cag cgg atg aag gat tgg cag gag att ata gct ctg tat gag 554  
 Ser Ser Gln Arg Met Lys Asp Trp Gln Glu Ile Ile Ala Leu Tyr Glu  
 43 48 53 58

aag gac aac acc tac tta gtg gaa ctc tct agc ctc ctg gtt cgg aat	602
Lys Asp Asn Thr Tyr Leu Val Glu Leu Ser Ser Leu Leu Val Arg Asn	
59 64 69 74	
gtc aac tat gag atc ccc tca ctg aag aag cag att gcc aag tgc cag	650
Val Asn Tyr Glu Ile Pro Ser Leu Lys Lys Gln Ile Ala Lys Cys Gln	
75 80 85 90	
cag ctg cag caa gaa tac agc cgc aag gag gag gag tgc cag gca ggg	698
Gln Leu Gln Gln Glu Tyr Ser Arg Lys Glu Glu Glu Cys Gln Ala Gly	
91 96 101 106	
gct gcc gag atg cgg gag cag ttc tac cac tcc tgc aag cag tat ggc	746
Ala Ala Glu Met Arg Glu Gln Phe Tyr His Ser Cys Lys Gln Tyr Gly	
107 112 117 122	
atc acg ggc gaa aat gtc cga gga gaa ctg ctg gcc ctg gtg aag gac	794
Ile Thr Gly Glu Asn Val Arg Gly Glu Leu Leu Ala Leu Val Lys Asp	
123 128 133 138	
ctg ccg agt cag ctg gct gag att ggg gca gcg gct cag cag tcc ctg	842
Leu Pro Ser Gln Leu Ala Glu Ile Gly Ala Ala Ala Gln Gln Ser Leu	
139 144 149 154	
ggg gaa gcc att gac gtg tac cag gcg tct gtg ggg ttt gtg tgt gag	890
Gly Glu Ala Ile Asp Val Tyr Gln Ala Ser Val Gly Phe Val Cys Glu	
155 160 165 170	
agc ccc aca gag cag gtg ttg cca atg ctg cgg ttc gtg cag aag cgg	938
Ser Pro Thr Glu Gln Val Leu Pro Met Leu Arg Phe Val Gln Lys Arg	
171 176 181 186	
gga aac tca acg gtg tac gag tgg agg aca ggg aca gag ccc tct gtg	986
Gly Asn Ser Thr Val Tyr Glu Trp Arg Thr Gly Thr Glu Pro Ser Val	
187 192 197 202	
gtg gaa cga ccc cac ctc gag gag ctt cct gag cag gtg gca gaa gat	1034
Val Glu Arg Pro His Leu Glu Glu Leu Pro Glu Gln Val Ala Glu Asp	
203 208 213 218	
gcg att gac tgg ggc gac ttt ggg gta gag gca gtg tct gag ggg act	1082
Ala Ile Asp Trp Gly Asp Phe Gly Val Glu Ala Val Ser Glu Gly Thr	
219 224 229 234	
gac tct ggc atc tct gcc gag gct gct gga atc gac tgg ggc atc ttc	1130
Asp Ser Gly Ile Ser Ala Glu Ala Ala Gly Ile Asp Trp Gly Ile Phe	
235 240 245 250	
ccg gaa tca gat tca aag gat cct gga ggt gat ggg ata gac tgg gga	1178
Pro Glu Ser Asp Ser Lys Asp Pro Gly Gly Asp Gly Ile Asp Trp Gly	
251 256 261 266	
gac gat gct gtt gct ttg cag atc aca gtg ctg gaa gca gga acc cag	1226
Asp Asp Ala Val Ala Leu Gln Ile Thr Val Leu Glu Ala Gly Thr Gln	
267 272 277 282	



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Ala Pro Glu Gly Val Ala Arg Gly Pro Asp Ala Leu Thr Leu Leu Glu	
283 288 293 298	
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Tyr Thr Glu Thr Arg Asn Gln Phe Leu Asp Glu Leu Met Glu Leu Glu	
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Ile Phe Leu Ala Gln Arg Ala Val Glu Leu Ser Glu Glu Ala Asp Val	
315 320 325 330	
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Leu Ser Val Ser Gln Phe Gln Leu Ala Pro Ala Ile Leu Gln Gly Gln	
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Thr Lys Glu Lys Met Val Thr Met Val Ser Val Leu Glu Asp Leu Ile	
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Gly Lys Leu Thr Ser Leu Gln Leu Gln His Leu Phe Met Ile Leu Ala	
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Ser Pro Arg Tyr Val Asp Arg Val Thr Glu Phe Leu Gln Gln Lys Leu	
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Lys Gln Ser Gln Leu Leu Ala Leu Lys Lys Glu Leu Met Val Gln Lys	
395 400 405 410	
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Gln Gln Glu Ala Leu Glu Glu Gln Ala Ala Leu Glu Pro Lys Leu Asp	
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Leu Leu Leu Glu Lys Thr Lys Glu Leu Gln Lys Leu Ile Glu Ala Asp	
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Ile Ser Lys Arg Tyr Ser Gly Arg Pro Val Asn Leu Met Gly Thr Ser	
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Leu *	
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ggaaagccac aggaaggaag cggcacctga tggatgattt ggcaactctcc atgttctcta	1930
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 gcgcacccctc tggaggctgc cgtccaagag gatgatcgac gcgctcttag ttttgatagc 240  
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 ggagattacc tgtgcgtagc tcgaaataag gttggtgatg actacgtggt gctcaaagtg 360  
 gatgtggtg atg aaa ccg gcc aag att gag cac aag gag gag aac gac 408  
           Met Lys Pro Ala Lys Ile Glu His Lys Glu Glu Asn Asp  
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 cac aaa gtc ttc tac ggg ggt gac ctg aaa gtg gac tgt gtg gcc acc 456  
 His Lys Val Phe Tyr Gly Gly Asp Leu Lys Val Asp Cys Val Ala Thr  
   14                  19                  24                  29  
 ggg ctt ccc aat ccc gag atc tcc tgg agc ctc cca gac ggg agt ctg 504  
 Gly Leu Pro Asn Pro Glu Ile Ser Trp Ser Leu Pro Asp Gly Ser Leu  
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 gtg aac tcc ttc atg cag tgc gat gac agc ggt gga cgc acc aag cgc 552  
 Val Asn Ser Phe Met Gln Ser Asp Asp Ser Gly Gly Arg Thr Lys Arg  
   46                  51                  56                  61  
 tat gtc gtc ttc aac aat ggg aca ctc tac ttt aac gaa gtg ggg atg 600  
 Tyr Val Val Phe Asn Asn Gly Thr Leu Tyr Phe Asn Glu Val Gly Met  
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 agg gag gaa gga gac tac acc tgc ttt gct gaa aat cag gtc ggg aag 648  
 Arg Glu Glu Gly Asp Tyr Thr Cys Phe Ala Glu Asn Gln Val Gly Lys  
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 gac gag atg aga gtc aga gtc aag gtg gtg aca gcg ccc gcc acc atc 696  
 Asp Glu Met Arg Val Arg Val Lys Val Val Thr Ala Pro Ala Thr Ile  
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 cgg aac aag act tgc ttg gcg gtt cag gtg ccc tat gga gac gtg gtc 744  
 Arg Asn Lys Thr Cys Leu Ala Val Gln Val Pro Tyr Gly Asp Val Val  
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 act gta gcc tgt gag gcc aaa gga gaa ccc atg ccc aag gtg act tgg 792

Thr Val Ala Cys Glu Ala Lys Gly Glu Pro Met Pro Lys Val Thr Trp	
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Leu Ser Pro Thr Asn Lys Val Ile Pro Thr Ser Ser Glu Lys Tyr Gln	
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ata tac caa gat ggc act ctc ctt att cag aaa gcc cag cgt tct gac	888
Ile Tyr Gln Asp Gly Thr Leu Leu Ile Gln Lys Ala Gln Arg Ser Asp	
158 163 168 173	
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Ser Gly Asn Tyr Thr Cys Leu Val Arg Asn Ser Ala Gly Glu Asp Arg	
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aag acg gtg tgg att cac gtc aac gtc cag cca ccc aag atc aac ggt	984
Lys Thr Val Trp Ile His Val Asn Val Gln Pro Pro Lys Ile Asn Gly	
190 195 200 205	
aac ccc aac ccc atc acc act gtg cgg gag ata gca gcc ggg ggc agt	1032
Asn Pro Asn Pro Ile Thr Thr Val Arg Glu Ile Ala Ala Gly Gly Ser	
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Arg Lys Leu Ile Asp Cys Lys Ala Glu Gly Ile Pro Thr Pro Arg Val	
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Leu Trp Ala Phe Pro Glu Gly Val Val Leu Pro Ala Pro Tyr Tyr Gly	
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Asn Arg Ile Thr Val His Gly Asn Gly Ser Leu Asp Ile Arg Ser Leu	
254 259 264 269	
agg aag agc gac tcc gtc cag ctg gta tgc atg gca cgc aac gag gga	1224
Arg Lys Ser Asp Ser Val Gln Leu Val Cys Met Ala Arg Asn Glu Gly	
270 275 280 285	
ggg gag gcc agg ttg atc ctg cag ctc act gtc ctg gag ccc atg gag	1272
Gly Glu Ala Arg Leu Ile Leu Gln Leu Thr Val Leu Glu Pro Met Glu	
286 291 296 301	
aaa ccc atc ttc cac gac ccg atc agc gag aag atc acg gcc atg gcg	1320
Lys Pro Ile Phe His Asp Pro Ile Ser Glu Lys Ile Thr Ala Met Ala	
302 307 312 317	
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Gly His Thr Ile Ser Leu Asn Cys Ser Ala Ala Gly Thr Pro Thr Pro	
318 323 328 333	
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Ser Leu Val Trp Val Leu Pro Asn Gly Thr Asp Leu Gln Ser Gly Gln	
334 339 344 349	
cag ctg cag cgc ttc tac cac aag gct gac ggc atg cta cac att agc	1464
Gln Leu Gln Arg Phe Tyr His Lys Ala Asp Gly Met Leu His Ile Ser	

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ggt ctc tcc tcg gtg gac gct ggg gcc tac cgc tgc gtg gcc cgc aat				1512
Gly Leu Ser Ser Val Asp Ala Gly Ala Tyr Arg Cys Val Ala Arg Asn				
366	371	376	381	
gcc gct ggc cac acg gag agg ctg gtc tcc ctg aag gtg gga ctg aag				1560
Ala Ala Gly His Thr Glu Arg Leu Val Ser Leu Lys Val Gly Leu Lys				
382	387	392	397	
cca gaa gca aac aag cag tat cat aac ctg gtc agc atc atc aat ggt				1608
Pro Glu Ala Asn Lys Gln Tyr His Asn Leu Val Ser Ile Ile Asn Gly				
398	403	408	413	
gag acc ctg aag ctc ccc tgc acc cct ccc ggg gct ggg cag gga cgt				1656
Glu Thr Leu Lys Leu Pro Cys Thr Pro Pro Gly Ala Gly Gln Gly Arg				
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ttc tcc tgg acg ctc ccc aat ggc atg cat ctg gag ggc ccc caa acc				1704
Phe Ser Trp Thr Leu Pro Asn Gly Met His Leu Glu Gly Pro Gln Thr				
430	435	440	445	
ctg gga cgc gtt tct ctt ctg gac aat ggc acc ctc acg gtt cgt gag				1752
Leu Gly Arg Val Ser Leu Leu Asp Asn Gly Thr Leu Thr Val Arg Glu				
446	451	456	461	
gcc tcg gtg ttt gac agg ggt acc tat gta tgc agg atg gag acg gag				1800
Ala Ser Val Phe Asp Arg Gly Thr Tyr Val Cys Arg Met Glu Thr Glu				
462	467	472	477	
tac ggc cct tcg gtc acc agc atc ccc gtg att gtg atc gcc tat cct				1848
Tyr Gly Pro Ser Val Thr Ser Ile Pro Val Ile Val Ile Ala Tyr Pro				
478	483	488	493	
ccc cgg atc acc agc gag ccc acc ccg gtc atc tac acc cgg ccc ggg				1896
Pro Arg Ile Thr Ser Glu Pro Thr Pro Val Ile Tyr Thr Arg Pro Gly				
494	499	504	509	
aac acc gtg aaa ctg aac tgc atg gct atg ggg att ccc aaa gct gac				1944
Asn Thr Val Lys Leu Asn Cys Met Ala Met Gly Ile Pro Lys Ala Asp				
510	515	520	525	
atc acg tgg gag tta ccg gat aag tcg cat ctg aag gca ggg gtt cag				1992
Ile Thr Trp Glu Leu Pro Asp Lys Ser His Leu Lys Ala Gly Val Gln				
526	531	536	541	
gct cgt ctg tat gga aac aga ttt ctt cac ccc cag gga tca ctg acc				2040
Ala Arg Leu Tyr Gly Asn Arg Phe Leu His Pro Gln Gly Ser Leu Thr				
542	547	552	557	
atc cag cat gcc aca cag aga gat gcc ggc ttc tac aag tgc atg gca				2088
Ile Gln His Ala Thr Gln Arg Asp Ala Gly Phe Tyr Lys Cys Met Ala				
558	563	568	573	
aaa aac att ctc ggc agt gac tcc aaa aca act tac atc cac gtc ttc				2136
Lys Asn Ile Leu Gly Ser Asp Ser Lys Thr Thr Tyr Ile His Val Phe				
574	579	584	589	

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590

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aatgattagc ttctctacac atttttaaca ggcaaggaaa ctgagtcaaa ggcaatgctt 3453

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<222> (234)..(1445)

<400> 761

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tgaggcggac acttctgtgg agcgaagcag tgggagcatc gagcactaga ggcgacaccg      180
ggatccccgg ctccggggag gggggcgccg gaccgggagg aggggagggg gcg      atg      236
                                          Met
                                          1

ctg gaa gcc atg gcg gag ccc agt ccc gaa gat cca cct ccg acc ctt      284
Leu Glu Ala Met Ala Glu Pro Ser Pro Glu Asp Pro Pro Pro Thr Leu
  2              7              12              17

aag cca gag act cag cca cca gag aaa cgg cgg aga aca att gag gat      332
Lys Pro Glu Thr Gln Pro Pro Glu Lys Arg Arg Arg Thr Ile Glu Asp
 18              23              28              33

ttc aac aaa ttc tgc agt ttt gtt ttg gca tat gct ggt tac att ccc      380
Phe Asn Lys Phe Cys Ser Phe Val Leu Ala Tyr Ala Gly Tyr Ile Pro
 34              39              44              49

cct agc aaa gag gaa agt gac tgg cca gcc tct ggc tcc agc tct cca      428
Pro Ser Lys Glu Glu Ser Asp Trp Pro Ala Ser Gly Ser Ser Ser Pro
 50              55              60              65

ttg cga gga gag agt gcg gcc gac agt gat ggc tgg gac tcg gcc ccc      476
Leu Arg Gly Glu Ser Ala Ala Asp Ser Asp Gly Trp Asp Ser Ala Pro
 66              71              76              81

tca gat ctt cga acc atc cag act ttt gtt aag aaa gca aag tca tcc      524
Ser Asp Leu Arg Thr Ile Gln Thr Phe Val Lys Lys Ala Lys Ser Ser
 82              87              92              97

aag aga agg gca gct caa gca ggt ccc acc cag cca gga ccc cca agg      572
Lys Arg Arg Ala Ala Gln Ala Gly Pro Thr Gln Pro Gly Pro Pro Arg
 98              103              108              113

tcc act ttc tct cgt ctg cag gcc ccc gac agt gct acc ttg ctt gag      620
Ser Thr Phe Ser Arg Leu Gln Ala Pro Asp Ser Ala Thr Leu Leu Glu
114              119              124              129

aag atg aag ctc aag gac tct ctc ttt gat ctg gat ggg ccc aaa gtg      668
Lys Met Lys Leu Lys Asp Ser Leu Phe Asp Leu Asp Gly Pro Lys Val
130              135              140              145

gca tct cct ttg tcc ccc aca tcc ctg aca cat acc tcc cgg ccc cct      716
Ala Ser Pro Leu Ser Pro Thr Ser Leu Thr His Thr Ser Arg Pro Pro
146              151              156              161
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Pro Arg Lys Lys Asp Arg Lys Asn Arg Lys Leu Gly Pro Gly Ala Gly	
178 183 188 193	
gct ggc ttt ggg gtg ctt cgg agg cct cgg cca act cct ggg gat ggg	860
Ala Gly Phe Gly Val Leu Arg Arg Pro Arg Pro Thr Pro Gly Asp Gly	
194 199 204 209	
gaa aag aga tct cga atc aag aag agc aag aag cgg aag tta aaa aag	908
Glu Lys Arg Ser Arg Ile Lys Lys Ser Lys Lys Arg Lys Leu Lys Lys	
210 215 220 225	
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Ala Glu Arg Gly Asp Arg Leu Pro Pro Pro Gly Pro Pro Gln Ala Pro	
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ccc agt gat aca gac tct gaa gag gag gag gaa gag gag gaa gag gaa	1004
Pro Ser Asp Thr Asp Ser Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu	
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Glu Glu Glu Glu Met Ala Thr Val Val Gly Gly Glu Ala Pro Val Pro	
258 263 268 273	
gtg ctg cca aca ccc cct gag gct cct agg ccc cct gcc aca gtg cac	1100
Val Leu Pro Thr Pro Pro Glu Ala Pro Arg Pro Pro Ala Thr Val His	
274 279 284 289	
cct gaa gga gtc cct cct gct gac agt gaa agc aag gag gtg ggc agc	1148
Pro Glu Gly Val Pro Pro Ala Asp Ser Glu Ser Lys Glu Val Gly Ser	
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Thr Glu Thr Ser Gln Asp Gly Asp Ala Ser Ser Ser Glu Gly Glu Met	
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Arg Val Met Asp Glu Asp Ile Met Val Glu Ser Gly Asp Asp Ser Trp	
322 327 332 337	
gat ctg atc aca tgt tac tgt cga aag ccc ttt gca ggg cgg ccc atg	1292
Asp Leu Ile Thr Cys Tyr Cys Arg Lys Pro Phe Ala Gly Arg Pro Met	
338 343 348 353	
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Ile Glu Cys Ser Leu Cys Gly Thr Trp Ile His Leu Ser Cys Ala Lys	
354 359 364 369	
att aag aag acc aac gtc ccc gac ttc ttt tat tgc cag aaa tgc aag	1388
Ile Lys Lys Thr Asn Val Pro Asp Phe Phe Tyr Cys Gln Lys Cys Lys	
370 375 380 385	
gaa ctg agg cca gag gcc cgg cgg tta ggg ggg cct ccc aaa tct gga	1436

Glu Leu Arg Pro Glu Ala Arg Arg Leu Gly Gly Pro Pro Lys Ser Gly  
386 391 396 401

gag ccc tga tggcacc aacttttagcc tggaacttcc aaatgacaac atgatttggg 1492  
Glu Pro \*  
402

aactgagcct caggggtcctc agcctatccc ctggagcttg gatactgtct gcacttcaag 1552

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<222> (66)..(605)

<400> 762

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Met Gln Asp Gly Arg Lys Gly Gly Ala Tyr Ala Gly Lys Met  
1 5 10

gag gcg act acg gct ggt gtg ggc cgg cta gag gaa gag gcg ttg cgg 155  
Glu Ala Thr Thr Ala Gly Val Gly Arg Leu Glu Glu Glu Ala Leu Arg  
15 20 25 30

cga aag gaa cgg ctg aag gcc cta cgg gag aaa acc ggg cgc aag gac 203  
Arg Lys Glu Arg Leu Lys Ala Leu Arg Glu Lys Thr Gly Arg Lys Asp  
31 36 41 46

aag gaa gat ggg gag cca aag acc aag cat ctc aga gaa gag gag gaa 251  
Lys Glu Asp Gly Glu Pro Lys Thr Lys His Leu Arg Glu Glu Glu Glu  
47 52 57 62



gaa ggc gag aag cac agg gaa ctt agg ctg cgg aac tat gtc ccg gag	299
Glu Gly Glu Lys His Arg Glu Leu Arg Leu Arg Asn Tyr Val Pro Glu	
63 68 73 78	
gat gag gac ctg aag aag agg agg gtg ccc cag gcc aaa ccg gtt gca	347
Asp Glu Asp Leu Lys Lys Arg Arg Val Pro Gln Ala Lys Pro Val Ala	
79 84 89 94	
gtg gag gag aag gtg aag gag cag ctg gag gcc gcc aag ccc gag ccc	395
Val Glu Glu Lys Val Lys Glu Gln Leu Glu Ala Ala Lys Pro Glu Pro	
95 100 105 110	
gtc atc gag gag gtg gac ctg gcc aac ctc gct cct cgg aag cct gac	443
Val Ile Glu Glu Val Asp Leu Ala Asn Leu Ala Pro Arg Lys Pro Asp	
111 116 121 126	
tgg gac ctc aag aga gat gtg gcc aag aag ctg gag aaa cta aaa aag	491
Trp Asp Leu Lys Arg Asp Val Ala Lys Lys Leu Glu Lys Leu Lys Lys	
127 132 137 142	
cgg act cag agg gcc att gcc gag ctg atc cgt gaa agg ctg aaa ggc	539
Arg Thr Gln Arg Ala Ile Ala Glu Leu Ile Arg Glu Arg Leu Lys Gly	
143 148 153 158	
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Gln Glu Asp Ser Leu Ala Ser Ala Val Asp Ala Ala Thr Glu Gln Lys	
159 164 169 174	
acc tgt gac tcc gac tga ggcattg cctgcccga ccaactcgccc atcaggcctg	641
Thr Cys Asp Ser Asp *	
175 180	
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1 5 10	
gta tat gtt gaa gtg gcc tat ccc agg aca ggt ggc act ctt tca gat Val Tyr Val Glu Val Ala Tyr Pro Arg Thr Gly Gly Thr Leu Ser Asp	217
15 20 25 30	
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31 36 41 46	
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47 52 57 62	
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63 68 73 78	
gac agc aaa cag aga ttc ggg ttc tgc cgc tta tct tca gga gcg aag Asp Ser Lys Gln Arg Phe Gly Phe Cys Arg Leu Ser Ser Gly Ala Lys	409
79 84 89 94	
agc tgc ttc tgt atc tta agc tat ctc ccc tgg ttc gag gta ttt tat Ser Cys Phe Cys Ile Leu Ser Tyr Leu Pro Trp Phe Glu Val Phe Tyr	457
95 100 105 110	
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111 116 121 126	
cag tgg aat gag ctt ctt gaa act ctg cac aaa ctt ccc atc cct gac Gln Trp Asn Glu Leu Leu Glu Thr Leu His Lys Leu Pro Ile Pro Asp	553
127 132 137 142	
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159 164 169 174	
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175 180 185 190	
atg ctg tac gaa cgc cgg ata ctc atc att tgc agc aaa ctc agc act Met Leu Tyr Glu Arg Arg Ile Leu Ile Ile Cys Ser Lys Leu Ser Thr	745
191 196 201 206	

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Leu Thr Ala Cys Ile His Gly Ser Ala Ala Met Leu Tyr Pro Met Tyr	
207 212 217 222	
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Trp Gln His Val Tyr Ile Pro Val Leu Pro Pro His Leu Leu Asp Tyr	
223 228 233 238	
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Cys Cys Ala Pro Met Pro Tyr Leu Ile Gly Ile His Leu Ser Leu Met	
239 244 249 254	
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Glu Lys Val Arg Asn Met Ala Leu Asp Asp Val Val Ile Leu Asn Val	
255 260 265 270	
gac acc aac acc ctg gaa acc ccc ttc gat gac ctc cag agc ctc cca	985
Asp Thr Asn Thr Leu Glu Thr Pro Phe Asp Asp Leu Gln Ser Leu Pro	
271 276 281 286	
aac gac gtg atc tct tcc ctg aag aac agg ctg aaa aag gtc tcc aca	1033
Asn Asp Val Ile Ser Ser Leu Lys Asn Arg Leu Lys Lys Val Ser Thr	
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Thr Thr Gly Asp Gly Val Ala Arg Ala Phe Leu Lys Ala Gln Ala Ala	
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Phe Phe Gly Ser Tyr Arg Asn Ala Leu Lys Ile Glu Pro Glu Glu Pro	
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atc act ttc tgt gag gaa gcc ttc gtg tcc cac tac cgc tcc gga gcc	1177
Ile Thr Phe Cys Glu Glu Ala Phe Val Ser His Tyr Arg Ser Gly Ala	
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Met Arg Gln Phe Leu Gln Asn Ala Thr Gln Leu Gln Leu Phe Lys Gln	
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Phe Ile Asp Gly Arg Leu Asp Leu Leu Asn Ser Gly Glu Gly Phe Ser	
367 372 377 382	
gat gtt ttt gaa gag gaa atc aac atg ggc gag tac gct ggc agt gac	1321
Asp Val Phe Glu Glu Glu Ile Asn Met Gly Glu Tyr Ala Gly Ser Asp	
383 388 393 398	
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Lys Leu Tyr His Gln Trp Leu Ser Thr Val Arg Lys Gly Ser Gly Ala	
399 404 409 414	
att ctg aat act gta aag acc aaa gca aat ccg gcc atg aag act gtc	1417
Ile Leu Asn Thr Val Lys Thr Lys Ala Asn Pro Ala Met Lys Thr Val	
415 420 425 430	
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Tyr Lys Phe Ala Lys Asp His Ala Lys Met Gly Ile Lys Glu Val Lys	
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447 452 457 462	
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Pro Glu Glu Gln Leu Pro Lys Thr Ala Pro Ser Pro Leu Val Glu Ala	
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Lys Asp Pro Lys Leu Arg Glu Asp Arg Arg Pro Ile Thr Val His Phe	
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Gly Gln Val Arg Pro Pro Arg Pro His Val Val Lys Arg Pro Lys Ser	
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Asn Thr Ile Ala Thr Pro Ala Thr Leu His Ile Leu Gln Lys Ser Ile	
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Thr His Phe Ala Ala Lys Phe Pro Thr Arg Gly Trp Thr Ser Ser Ser	
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cat tga cttacgccgt tgcttttcca gactgggcag aggggctgac ttgcagtg	1857
His *	
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cagtggctcg ggcccacaag gagacagagg ggtacgtttc aggacatcat tccaagggtt	2157
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tcccaggcca gccatcctaa tgagtgtgaa gtggtatttc actgtatttc cctaattggat      240
ctgtccacaa cttaggaact cacacagctt ttggcctgag ccccggttac caagagaaaag      300
gaggtttttg ccaaggactc caaggggagt gcacttgatg ctggtcggga cccaaagcgc      360
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                                   Met His Gly Ser Cys Ser Phe
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Leu Met Leu Leu Leu Pro Leu Leu Leu Leu Leu Val Ala Thr Thr Gly
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ccc gtt gga gcc ctc aca gat gag gag aaa cgt ttg atg gtg gag ctg      627
Pro Val Gly Ala Leu Thr Asp Glu Glu Lys Arg Leu Met Val Glu Leu
  24               29               34               39

cac aac ctc tac cgg gcc cag gta tcc ccg acg gcc tca gac atg ctg      675
His Asn Leu Tyr Arg Ala Gln Val Ser Pro Thr Ala Ser Asp Met Leu
  40               45               50               55

cac atg aga tgg gac gag gag ctg gcc gcc ttc gcc aag gcc tac gca      723
His Met Arg Trp Asp Glu Glu Leu Ala Ala Phe Ala Lys Ala Tyr Ala
  56               61               66               71

cgg cag tgc gtg tgg ggc cac aac aag gag cgc ggg cgc cgc ggc gag      771
Arg Gln Cys Val Trp Gly His Asn Lys Glu Arg Gly Arg Arg Gly Glu
  72               77               82               87

aat ctg ttc gcc atc aca gac gag ggc atg gac gtg ccg ctg gcc atg      819
Asn Leu Phe Ala Ile Thr Asp Glu Gly Met Asp Val Pro Leu Ala Met
  88               93               98               103

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Cys Ser Pro Gly Gln Met Cys Gly His Tyr Thr Gln Val Val Trp Ala	
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Lys Thr Glu Arg Ile Gly Cys Gly Ser His Phe Cys Glu Lys Leu Gln	
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152 157 162 167	

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Pro Gly Asn Val Lys Gly Lys Arg Pro Tyr Gln Glu Gly Thr Pro Cys	
168 173 178 183	

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Ser Gln Cys Pro Ser Gly Tyr His Cys Lys Asn Ser Leu Cys Glu Pro	
184 189 194 199	

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Ile Gly Ser Pro Glu Asp Ala Gln Asp Leu Pro Tyr Leu Val Thr Glu	
200 205 210 215	

gcc cca tcc ttc cgg gcg act gaa gca tca gac tct agg aaa atg gtt	1203
Ala Pro Ser Phe Arg Ala Thr Glu Ala Ser Asp Ser Arg Lys Met Val	
216 221 226 231	

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Phe Pro Ala Gln Asp Lys Pro Gly Glu Leu Gln Ala Thr Leu Asp His	
232 237 242 247	

acg ggg cac acc tcc tcc aag tcc ctg ccc aat ttc ccc ata tac ctc	1299
Thr Gly His Thr Ser Ser Lys Ser Leu Pro Asn Phe Pro Ile Tyr Leu	
248 253 258 263	

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Cys His Arg *	
264	

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1 5 10  
gaa ttt gaa aaa tcg gct aag gaa aat tta aga gat tct aag gaa ttg 218  
Glu Phe Glu Lys Ser Ala Lys Glu Asn Leu Arg Asp Ser Lys Glu Leu  
14 19 24 29  
aga aat ttt gag gca ttg caa ata gat gac ata atg gct ata aaa atg 266  
Arg Asn Phe Glu Ala Leu Gln Ile Asp Asp Ile Met Ala Ile Lys Met  
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gaa gat ccc aaa gaa att aga aag gaa gag tta gaa gaa gat cac aaa 314  
Glu Asp Pro Lys Glu Ile Arg Lys Glu Glu Leu Glu Glu Asp His Lys  
46 51 56 61  
tgt agt cat ttt cct gat ttt tct tat tct gcc agt agc aag ata ata 362  
Cys Ser His Phe Pro Asp Phe Ser Tyr Ser Ala Ser Ser Lys Ile Ile  
62 67 72 77  
att agt gat gtt ccc agt aga aag gat cat atg tgc cat cct cat gga 410  
Ile Ser Asp Val Pro Ser Arg Lys Asp His Met Cys His Pro His Gly  
78 83 88 93  
att atg atc att gag gat ccc gca gca tta aac aag cca gaa aag cta 458  
Ile Met Ile Ile Glu Asp Pro Ala Ala Leu Asn Lys Pro Glu Lys Leu  
94 99 104 109  
aaa aag aaa aag aag aaa agc aaa atg gat cga cat gga aat gat aaa 506  
Lys Lys Lys Lys Lys Lys Ser Lys Met Asp Arg His Gly Asn Asp Lys

110	115	120	125	
tcc aca ccc aag aag act tgc aaa aag agg cag tct tcg gaa tct gac				554
Ser Thr Pro Lys Lys Thr Cys Lys Lys Arg Gln Ser Ser Glu Ser Asp				
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att gag agc gtc ata tat acc att gaa gcc gtc gca aaa gga gac tgg				602
Ile Glu Ser Val Ile Tyr Thr Ile Glu Ala Val Ala Lys Gly Asp Trp				
142	147	152	157	
ggc ata gag aaa ctt gga gat acc cct cgc aag aag gtc cgc aca tcc				650
Gly Ile Glu Lys Leu Gly Asp Thr Pro Arg Lys Lys Val Arg Thr Ser				
158	163	168	173	
tca agt ggc aag gga agc att ttg gat gcc aag cca cca aag aaa aaa				698
Ser Ser Gly Lys Gly Ser Ile Leu Asp Ala Lys Pro Pro Lys Lys Lys				
174	179	184	189	
gtg aaa tca aga gag aag aaa atg tca aag gag aaa tcc tca gac acc				746
Val Lys Ser Arg Glu Lys Lys Met Ser Lys Glu Lys Ser Ser Asp Thr				
190	195	200	205	
acc aaa gag tca aga cct cca gat ttc att agt att tct gct agc aag				794
Thr Lys Glu Ser Arg Pro Pro Asp Phe Ile Ser Ile Ser Ala Ser Lys				
206	211	216	221	
aac att tct ggt gag aca cca gag ggt ata aaa gca gaa cca ttg acc				842
Asn Ile Ser Gly Glu Thr Pro Glu Gly Ile Lys Ala Glu Pro Leu Thr				
222	227	232	237	
cct atg gaa gat gca cta cca ccc agc cta tca gga cag gcc aag cct				890
Pro Met Glu Asp Ala Leu Pro Pro Ser Leu Ser Gly Gln Ala Lys Pro				
238	243	248	253	
gag gac agt gac tgt cac aga aaa ata gaa act tgt ggt tcc agg aaa				938
Glu Asp Ser Asp Cys His Arg Lys Ile Glu Thr Cys Gly Ser Arg Lys				
254	259	264	269	
tcc gag agg tct tgc aaa ggt gct ctt tat aaa acc ctg gtg tct gag				986
Ser Glu Arg Ser Cys Lys Gly Ala Leu Tyr Lys Thr Leu Val Ser Glu				
270	275	280	285	
ggc atg ctc acc tct ctg cga gct aat gtt gac aga gga aaa cga agc				1034
Gly Met Leu Thr Ser Leu Arg Ala Asn Val Asp Arg Gly Lys Arg Ser				
286	291	296	301	
tca gga aaa gga aac tcc tct gat cat gaa ggg tgt tgg aat gaa gaa				1082
Ser Gly Lys Gly Asn Ser Ser Asp His Glu Gly Cys Trp Asn Glu Glu				
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agc tgg aca ttt agt cag agt ggg acc agt ggg agc aag aag ttc aag				1130
Ser Trp Thr Phe Ser Gln Ser Gly Thr Ser Gly Ser Lys Lys Phe Lys				
318	323	328	333	
aag aca aag cca aaa gaa gac tgt ctc ctt ggc tcc gca aag ctg gat				1178
Lys Thr Lys Pro Lys Glu Asp Cys Leu Leu Gly Ser Ala Lys Leu Asp				
334	339	344	349	



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aca ttt gac cgg aaa tgt gta cct gtc cca aga aaa aag aag aag act	1274
Thr Phe Asp Arg Lys Cys Val Pro Val Pro Arg Lys Lys Lys Lys Thr	
366 371 376 381	
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Gly Asn Val Ser Ser Glu Pro Thr Lys Thr Ser Lys Gly Ser Gly Asp	
382 387 392 397	
aaa tgg tca aac aag caa ctc ttc ttg gat gcc att cac cct aca gaa	1370
Lys Trp Ser Asn Lys Gln Leu Phe Leu Asp Ala Ile His Pro Thr Glu	
398 403 408 413	
gcc ata ttt tca gaa gac aga aac acc atg gag cct gtt cat aag gtt	1418
Ala Ile Phe Ser Glu Asp Arg Asn Thr Met Glu Pro Val His Lys Val	
414 419 424 429	
aaa aat atc cca tcc att ttc aac act cca gag cca aca aca acg caa	1466
Lys Asn Ile Pro Ser Ile Phe Asn Thr Pro Glu Pro Thr Thr Thr Gln	
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gaa cct ttg gtg ggc agc caa aag aga aaa gca agg aaa acc aag att	1514
Glu Pro Leu Val Gly Ser Gln Lys Arg Lys Ala Arg Lys Thr Lys Ile	
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aca cac ctt gtc agg aca gca gat ggc cgg gta tca cca gca gga ggt	1562
Thr His Leu Val Arg Thr Ala Asp Gly Arg Val Ser Pro Ala Gly Gly	
462 467 472 477	
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Thr Leu Asp Asp Lys Pro Lys Glu Gln Leu Gln Arg Ser Leu Pro Lys	
478 483 488 493	
gca act gag aca gac tgc aat gac aaa tgc tca cac aac acc gag gtc	1658
Ala Thr Glu Thr Asp Cys Asn Asp Lys Cys Ser His Asn Thr Glu Val	
494 499 504 509	
ggg gag acg cgg agc agt act cca gaa atg cct gcc gtg tct gcg ttc	1706
Gly Glu Thr Arg Ser Ser Thr Pro Glu Met Pro Ala Val Ser Ala Phe	
510 515 520 525	
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Phe Ser Leu Ala Ala Leu Ala Glu Val Ala Ala Met Glu Asn Val His	
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atg ccg cag gct cct gta ctt att tcc tgc gct gac cag tga agcgcgc	1851
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1890

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ctcatagaac tgatgagaag attaaattag ttaacatatg taa atg tat aaa gca 175  
Met Tyr Lys Ala  
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ctt aga aca gtg cct ggc tct tcg gaa gtg ctg ctg tta tta gca cag 223  
Leu Arg Thr Val Pro Gly Ser Ser Glu Val Leu Leu Leu Leu Ala Gln  
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Pro Trp Leu Gln Pro Cys Pro His Leu Pro Thr Ala Ser Leu Thr Ser  
21 26 31 36

gac ctg acc ttc cct tgt gtc ccc tct gag gag cag tat gaa gag cgg 319  
Asp Leu Thr Phe Pro Cys Val Pro Ser Glu Glu Gln Tyr Glu Glu Arg  
37 42 47 52

ttt ctg cag gaa gaa acc gtg tcc cag cag atc aac tcc atc gaa ctt 367  
Phe Leu Gln Glu Glu Thr Val Ser Gln Gln Ile Asn Ser Ile Glu Leu  
53 58 63 68

ctg cag acg cga ccc ctg gct ctg cct gag gtg gtg aag tca cag cgg 415  
Leu Gln Thr Arg Pro Leu Ala Leu Pro Glu Val Val Lys Ser Gln Arg  
69 74 79 84

ccc ctg cag agg cag gtc cac ctg aga ggc cgg ccg gcc tcc cag ccc 463  
Pro Leu Gln Arg Gln Val His Leu Arg Gly Arg Pro Ala Ser Gln Pro  
85 90 95 100

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Thr Val Ile Arg Gly Ile Thr Tyr Tyr Lys Ala Lys Val Ser Glu Glu  
101 106 111 116

gag aat gac att gaa gag cag caa gat gag ttt ttc agc ggt gac aat 559  
Glu Asn Asp Ile Glu Glu Gln Gln Asp Glu Phe Phe Ser Gly Asp Asn  
117 122 127 132

gga gtg gat ttg ctg att gaa gat cag ctc ctg aga cac aac ggc ctg 607  
Gly Val Asp Leu Leu Ile Glu Asp Gln Leu Leu Arg His Asn Gly Leu

133	138	143	148	
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Met Thr Ser Val Thr	Arg Arg Pro Ala Ala	Thr Arg Gln Gly His	Ser	
149	154	159	164	
act gct gtg aca agc	gac ctg aac gct cgg	acc gca ccc tgg tcc	tca	703
Thr Ala Val Thr Ser	Asp Leu Asn Ala Arg	Thr Ala Pro Trp Ser	Ser	
165	170	175	180	
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Ala Leu Pro Gln Pro	Ser Thr Ser Asp Pro	Ser Ile Ala Asn His	Ala	
181	186	191	196	
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197	202	207	212	
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Arg Glu Ser Val Leu	Gln Pro Ser Pro Gln	Val Pro Ala Thr Thr	Val	
213	218	223	228	
gcc cac aca gcc acc	cag caa cca gca gcc	cca gct cct ccg gca	gtg	895
Ala His Thr Ala Thr	Gln Gln Pro Ala Ala	Pro Ala Pro Pro Ala	Val	
229	234	239	244	
tct ccc agg gag gca	ttg atg gaa gct atg	cac aca gtc cca gtg	cct	943
Ser Pro Arg Glu Ala	Leu Met Glu Ala Met	His Thr Val Pro Val	Pro	
245	250	255	260	
ccc acc aca gtc aga	aca gac tcg ctg ggg	aaa gat gct cct gct	ggg	991
Pro Thr Thr Val Arg	Thr Asp Ser Leu Gly	Lys Asp Ala Pro Ala	Gly	
261	266	271	276	
cgg gga aca acc cct	gcc agc ccc acg ctg	agc ccc gaa gaa gaa	gat	1039
Arg Gly Thr Thr Pro	Ala Ser Pro Thr Leu	Ser Pro Glu Glu Glu	Asp	
277	282	287	292	
gac atc cgg aat gtc	ata gga agg tgc aag	gac act ctc tcc aca	atc	1087
Asp Ile Arg Asn Val	Ile Gly Arg Cys Lys	Asp Thr Leu Ser Thr	Ile	
293	298	303	308	
acg ggg ccg acc acc	cag aac aca tat ggg	cgg aat gaa ggg gcc	tgg	1135
Thr Gly Pro Thr Thr	Gln Asn Thr Tyr Gly	Arg Asn Glu Gly Ala	Trp	
309	314	319	324	
atg aag gac ccc ctg	gcc aag gat gag cgg	att tac gta acc aac	tat	1183
Met Lys Asp Pro Leu	Ala Lys Asp Glu Arg	Ile Tyr Val Thr Asn	Tyr	
325	330	335	340	
tac tac ggc aac acc	ctg gta gag ttc cgg	aac ctg gag aac ttc	aaa	1231
Tyr Tyr Gly Asn Thr	Leu Val Glu Phe Arg	Asn Leu Glu Asn Phe	Lys	
341	346	351	356	
caa ggt cgc tgg agc	aat tcc tac aag ctc	ccg tac agc tgg atc	ggc	1279
Gln Gly Arg Trp Ser	Asn Ser Tyr Lys Leu	Pro Tyr Ser Trp Ile	Gly	
357	362	367	372	

aca ggc cac gtg gta tac aat ggc gcc ttc tac tac aat cgc gcc ttc	1327
Thr Gly His Val Val Tyr Asn Gly Ala Phe Tyr Tyr Asn Arg Ala Phe	
373 378 383 388	
acc cgc aac atc atc aag tac gac ctg aag cag cgc tac gtg gcc gcc	1375
Thr Arg Asn Ile Ile Lys Tyr Asp Leu Lys Gln Arg Tyr Val Ala Ala	
389 394 399 404	
tgg gcc atg ctg cat gac gtg gcc tac gag gag gcc acc ccc tgg cga	1423
Trp Ala Met Leu His Asp Val Ala Tyr Glu Glu Ala Thr Pro Trp Arg	
405 410 415 420	
tgg cag ggc cac tca gac gtg gac ttt gct gtg gac gag aat ggc cta	1471
Trp Gln Gly His Ser Asp Val Asp Phe Ala Val Asp Glu Asn Gly Leu	
421 426 431 436	
tgg ctc atc tac ccg gcc ctg gac gat gag ggc ttc agc cag gag gtc	1519
Trp Leu Ile Tyr Pro Ala Leu Asp Asp Glu Gly Phe Ser Gln Glu Val	
437 442 447 452	
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Ile Val Leu Ser Lys Leu Asn Ala Ala Asp Leu Ser Thr Gln Lys Glu	
453 458 463 468	
acc aca tgg cgc acg ggg ctc cgg agg aat ttc tac ggc aac tgc ttc	1615
Thr Thr Trp Arg Thr Gly Leu Arg Arg Asn Phe Tyr Gly Asn Cys Phe	
469 474 479 484	
gtc atc tgt ggg gtg ctg tat gcc gtg gat agc tac aac cag cgg aat	1663
Val Ile Cys Gly Val Leu Tyr Ala Val Asp Ser Tyr Asn Gln Arg Asn	
485 490 495 500	
gcc aac atc tcc tac gct ttc gac acc cac acc aac aca cag atc gtc	1711
Ala Asn Ile Ser Tyr Ala Phe Asp Thr His Thr Asn Thr Gln Ile Val	
501 506 511 516	
ccc agg ctg ctg ttc gag aat gag tat tcc tat acg acc cag ata gac	1759
Pro Arg Leu Leu Phe Glu Asn Glu Tyr Ser Tyr Thr Thr Gln Ile Asp	
517 522 527 532	
tac aac ccc aag gac cgc ctg ctc tat gcc tgg gac aat ggc cac cag	1807
Tyr Asn Pro Lys Asp Arg Leu Leu Tyr Ala Trp Asp Asn Gly His Gln	
533 538 543 548	
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Val Thr Tyr His Val Ile Phe Ala Tyr *	
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atttggtct atttttttat atggattgta gatcaatcca tacgtgtatg tgctggtctc	2038
atocctcccca gtttatattt ttgtgcaaag gaacttctcc ttttgaccag taaccacctt	2098

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 Met His Ser Leu Gln Ser Asp Pro Ala Gly Arg Tyr Arg Asn Val Leu  
 4 9 14 19  
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 Glu Val Leu Trp Arg Ile Ile Arg Thr Glu Gly Leu Trp Arg Pro Met  
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 Arg Gly Leu Asn Val Thr Ala Thr Gly Ala Trp Pro Ala His Ala Leu  
 36 41 46 51  
 tat ttt gcc tgc tac gaa aag tta aaa aag aca ttg agt gat gta atc 367  
 Tyr Phe Ala Cys Tyr Glu Lys Leu Lys Lys Thr Leu Ser Asp Val Ile  
 52 57 62 67  
 cac cct ggg ggc aat agc cat att gcc aat ggt gcg gcc ggg tgt gtg 415  
 His Pro Gly Gly Asn Ser His Ile Ala Asn Gly Ala Ala Gly Cys Val  
 68 73 78 83  
 gca aca tta ctt cat gat gca gcc atg aac cct gcg gaa gtg gtc aag 463  
 Ala Thr Leu Leu His Asp Ala Ala Met Asn Pro Ala Glu Val Val Lys  
 84 89 94 99  
 cag agg atg cag atg tac aac tca cca tac cac cgg gtg aca gac tgt 511  
 Gln Arg Met Gln Met Tyr Asn Ser Pro Tyr His Arg Val Thr Asp Cys  
 100 105 110 115

gta cgg gca gtg tgg caa aat gaa ggg gcc ggg gcc ttt tac cgc agc	559
Val Arg Ala Val Trp Gln Asn Glu Gly Ala Gly Ala Phe Tyr Arg Ser	
116 121 126 131	
tac acc acc cag ctg acc atg aac gtt cct ttc caa gcc att cac ttc	607
Tyr Thr Thr Gln Leu Thr Met Asn Val Pro Phe Gln Ala Ile His Phe	
132 137 142 147	
atg acc tat gaa ttc ctg cag gag cac ttt aac ccc cag aga cgg tac	655
Met Thr Tyr Glu Phe Leu Gln Glu His Phe Asn Pro Gln Arg Arg Tyr	
148 153 158 163	
aac cca agc tcc cac gtc ctc tct gga gct tgc gca gga gct gta gct	703
Asn Pro Ser Ser His Val Leu Ser Gly Ala Cys Ala Gly Ala Val Ala	
164 169 174 179	
gcc gca gcc aca acc cca ctg gac gtt tgc aaa aca ctg ctc aac acc	751
Ala Ala Ala Thr Thr Pro Leu Asp Val Cys Lys Thr Leu Leu Asn Thr	
180 185 190 195	
cag gag tcc ttg gct ttg aac tca cac att aca gga cat atc aca ggc	799
Gln Glu Ser Leu Ala Leu Asn Ser His Ile Thr Gly His Ile Thr Gly	
196 201 206 211	
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Met Ala Ser Ala Phe Arg Thr Val Tyr Gln Val Gly Gly Val Thr Ala	
212 217 222 227	
tat ttc cga ggg gtg cag gcc aga gta att tac cag atc ccc tcc aca	895
Tyr Phe Arg Gly Val Gln Ala Arg Val Ile Tyr Gln Ile Pro Ser Thr	
228 233 238 243	
gcc atc gca tgg tct gtg tat gag ttc ttc aaa tac cta atc act aaa	943
Ala Ile Ala Trp Ser Val Tyr Glu Phe Phe Lys Tyr Leu Ile Thr Lys	
244 249 254 259	
agg caa gaa gag tgg agg gct ggc aag tga a gtagcactga acgaagccag	994
Arg Gln Glu Glu Trp Arg Ala Gly Lys *	
260 265	
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tcaagtggag ttagaaggaa ggtagagggg ctctcccca ggattttggt gttttgacta	1114
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<400> 768

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cgcgcccccg ctctgcagg ctgtttttct tcaaataaag aac atg gtg aaa ctg 175
                                     Met Val Lys Leu
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Ile His Thr Leu Ala Asp His Gly Asp Asp Val Asn Cys Cys Ala Phe
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tcc ttt tcc ctc ttg gct act tgc tcc ttg gac aaa aca att cgc ctg 271
Ser Phe Ser Leu Leu Ala Thr Cys Ser Leu Asp Lys Thr Ile Arg Leu
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tac tcg tta cgt gac ttt act gaa ctg cca cat tct cca ttg aag ttt 319
Tyr Ser Leu Arg Asp Phe Thr Glu Leu Pro His Ser Pro Leu Lys Phe
  37                42                47                52

cat acc tat gct gtc cac tgc tgc tgt ttc tcc cct tca gga cat att 367
His Thr Tyr Ala Val His Cys Cys Cys Phe Ser Pro Ser Gly His Ile
  53                58                63                68

ttg gca tcg tgt tca aca gat ggt acc act gtc cta tgg aat act gaa 415
Leu Ala Ser Cys Ser Thr Asp Gly Thr Thr Val Leu Trp Asn Thr Glu
  69                74                79                84

aat gga cag atg ctg gca gtg atg gaa cag cct agt ggc agc cct gtg 463
Asn Gly Gln Met Leu Ala Val Met Glu Gln Pro Ser Gly Ser Pro Val
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agg gtt tgc cag ttt tcc cca gac tcc acg tgt ttg gca tca ggg gca 511
Arg Val Cys Gln Phe Ser Pro Asp Ser Thr Cys Leu Ala Ser Gly Ala
 101                106                111                116

gct gat gga act gtg gtt ttg tgg aat gca cag tca tac aaa tta tat 559
Ala Asp Gly Thr Val Val Leu Trp Asn Ala Gln Ser Tyr Lys Leu Tyr
 117                122                127                132

aga tgt ggt agt gtt aaa gat ggc tcc ttg gcg gca tgt gca ttt tct 607
Arg Cys Gly Ser Val Lys Asp Gly Ser Leu Ala Ala Cys Ala Phe Ser
 133                138                143                148

cct aat gga agc ttc ttt gtc act ggc tcc tca tgt ggt gat tta aca 655
Pro Asn Gly Ser Phe Phe Val Thr Gly Ser Ser Cys Gly Asp Leu Thr
 149                154                159                164

gtg tgg gat gat aaa atg agg tgt ctg cat agt gaa aaa gca cat gat 703

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Leu Gly Ile Thr Cys Cys Asp Phe Ser Ser Glu Pro Val Ser Asp Gly	
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gaa caa ggt ctt cag ttt ttt cga ctg gca tca tgt ggt cag gat tgc	799
Glu Gln Gly Leu Gln Phe Phe Arg Leu Ala Ser Cys Gly Gln Asp Cys	
197 202 207 212	
caa gtc aaa att tgg att gtt tct ttt acc cat atc tta ggt ttt gaa	847
Gln Val Lys Ile Trp Ile Val Ser Phe Thr His Ile Leu Gly Phe Glu	
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tta aaa tat aaa agt aca ctg agt ggg cac tgt gct cct gtt ctg gct	895
Leu Lys Tyr Lys Ser Thr Leu Ser Gly His Cys Ala Pro Val Leu Ala	
229 234 239 244	
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Cys Ala Phe Ser His Asp Gly Gln Met Leu Val Ser Gly Ser Val Asp	
245 250 255 260	
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Lys Ser Val Ile Val Tyr Asp Thr Asn Thr Glu Asn Ile Leu His Thr	
261 266 271 276	
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277 282 287 292	
acc ctt tta ctt gct act ggt tca atg gac aaa aca gtg aac atc tgg	1087
Thr Leu Leu Leu Ala Thr Gly Ser Met Asp Lys Thr Val Asn Ile Trp	
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Gln Phe Asp Leu Glu Thr Leu Cys Gln Ala Arg Ser Thr Glu His Gln	
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Leu Lys Gln Phe Thr Glu Asp Trp Ser Glu Glu Asp Val Ser Thr Trp	
325 330 335 340	
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Leu Cys Ala Gln Asp Leu Lys Asp Leu Val Gly Ile Phe Lys Met Asn	
341 346 351 356	
aac att gat gga aaa gaa ctg ttg aat ctt aca aaa gaa agt ctg gct	1279
Asn Ile Asp Gly Lys Glu Leu Leu Asn Leu Thr Lys Glu Ser Leu Ala	
357 362 367 372	
gat gat ttg aaa att gaa tct cta gga ctg cgt agt aaa gtg ctg agg	1327
Asp Asp Leu Lys Ile Glu Ser Leu Gly Leu Arg Ser Lys Val Leu Arg	
373 378 383 388	
aaa att gaa gag ctc agg acc aag gtt aaa tcc ctt tct tca gga att	1375
Lys Ile Glu Glu Leu Arg Thr Lys Val Lys Ser Leu Ser Ser Gly Ile	



389	394	399	404	
cct gat gaa ttt ata tgt cca ata act aga gaa ctt atg aaa gat ccg				1423
Pro Asp Glu Phe Ile Cys Pro Ile Thr Arg Glu Leu Met Lys Asp Pro				
405	410	415	420	
gtc atc gca tca gat ggc tat tca tat gaa aag gaa gca atg gaa aat				1471
Val Ile Ala Ser Asp Gly Tyr Ser Tyr Glu Lys Glu Ala Met Glu Asn				
421	426	431	436	
tgg atc agc aaa aag aaa cgt aca agt ccc atg aca aat ctt gtt ctt				1519
Trp Ile Ser Lys Lys Lys Arg Thr Ser Pro Met Thr Asn Leu Val Leu				
437	442	447	452	
cct tca gcg gta ctt aca cca aat agg act ctg aaa atg gcc atc aat				1567
Pro Ser Ala Val Leu Thr Pro Asn Arg Thr Leu Lys Met Ala Ile Asn				
453	458	463	468	
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Arg Trp Leu Glu Thr His Gln Lys *				
469	474			
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aaaacaggaa aaaggtaaact ttcttaaatt tagttaccta taaaaattgt caattttcat				1739
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Met Phe Gln Thr Gly Gly Leu Ile Val Phe Tyr Gly Leu Leu Ala Gln	
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Thr Met Ala Gln Phe Gly Gly Leu Pro Val Pro Leu Asp Gln Thr Leu	
17 22 27 32	
ccc ttg aat gtg aat cca gcc ctg ccc ttg agt ccc aca ggt ctt gca	263
Pro Leu Asn Val Asn Pro Ala Leu Pro Leu Ser Pro Thr Gly Leu Ala	
33 38 43 48	

gga agc ttg aca aat gcc ctc agc aat ggc ctg ctg tct ggg ggc ctg	311
Gly Ser Leu Thr Asn Ala Leu Ser Asn Gly Leu Leu Ser Gly Gly Leu	
49 54 59 64	
ttg ggc att ctg gaa aac ctt ccg ctc ctg gac atc ctg aag cct gga	359
Leu Gly Ile Leu Glu Asn Leu Pro Leu Leu Asp Ile Leu Lys Pro Gly	
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gga ggt act tct ggt ggc ctc ctt ggg gga ctg ctt gga aaa gtg acg	407
Gly Gly Thr Ser Gly Gly Leu Leu Gly Gly Leu Leu Gly Lys Val Thr	
81 86 91 96	
tca gtg att cct ggc ctg aac aac atc att gac ata aag gtc act gac	455
Ser Val Ile Pro Gly Leu Asn Asn Ile Ile Asp Ile Lys Val Thr Asp	
97 102 107 112	
ccc cag ctg ctg gaa ctt ggc ctt gtg cag agc cct gat ggc cac cgt	503
Pro Gln Leu Leu Glu Leu Gly Leu Val Gln Ser Pro Asp Gly His Arg	
113 118 123 128	
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Leu Tyr Val Thr Ile Pro Leu Gly Ile Lys Leu Gln Val Asn Thr Pro	
129 134 139 144	
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Leu Val Gly Ala Ser Leu Leu Arg Leu Ala Val Lys Leu Asp Ile Thr	
145 150 155 160	
gca gaa atc tta gct gtg aga gat aag cag gag agg atc cac ctg gtc	647
Ala Glu Ile Leu Ala Val Arg Asp Lys Gln Glu Arg Ile His Leu Val	
161 166 171 176	
ctt ggt gac tgc acc cat tcc cct gga agc ctg caa att tct ctg ctt	695
Leu Gly Asp Cys Thr His Ser Pro Gly Ser Leu Gln Ile Ser Leu Leu	
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Asp Gly Leu Gly Pro Leu Pro Ile Gln Gly Leu Leu Asp Ser Leu Thr	
193 198 203 208	
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Gly Ile Leu Asn Lys Val Leu Pro Glu Leu Val Gln Gly Asn Val Cys	
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cct ctg gtc aat gag gtt ctc aga ggc ttg gac atc acc ctg gtg cat	839
Pro Leu Val Asn Glu Val Leu Arg Gly Leu Asp Ile Thr Leu Val His	
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Asp Ile Val Asn Met Leu Ile His Gly Leu Gln Phe Val Ile Lys Val	
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* 257	

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 2 7 12 17  
 gca gct gag aag gtg gca gat gcc aga aag agg aag gcc cgg cga ctg 154  
 Ala Ala Glu Lys Val Ala Asp Ala Arg Lys Arg Lys Ala Arg Arg Leu  
 18 23 28 33  
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 Lys Gln Ala Lys Glu Glu Ala Gln Met Glu Val Glu Gln Tyr Arg Arg  
 34 39 44 49  
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 Glu Arg Glu His Glu Phe Gln Ser Lys Gln Gln Ala Ala Met Gly Ser  
 50 55 60 65  
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 Gln Gly Asn Leu Ser Ala Glu Val Glu Gln Ala Thr Arg Arg Gln Val  
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 Gln Gly Met Gln Ser Ser Gln Gln Arg Asn Arg Glu Arg Val Leu Ala  
 82 87 92 97  
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 Gln Leu Leu Gly Met Val Cys Asp Val Arg Pro Gln Val His Pro Asn  
 98 103 108 113  
 tac cgg att tct gcc tag ggccac cgtagggcct gactccttct gccagttccc 448  
 Tyr Arg Ile Ser Ala \*  
 114 119  
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 Leu Ser Ile Ala Leu Arg Thr Gln Pro Asn Asp Gly Pro Val Phe Tyr  
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 Lys Val Asp Gly Gln Arg Phe Gly Gln Asn Arg Thr Ile Lys Leu Leu  
 26 31 36 41  
 acc ggc tcc tcc tac aag gtt gag gtg aag att aag ccc agc acg ctg 194  
 Thr Gly Ser Ser Tyr Lys Val Glu Val Lys Ile Lys Pro Ser Thr Leu  
 42 47 52 57  
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 Gln Val Glu Asn Ile Ser Ile Gly Gly Val Leu Val Pro Leu Glu Leu  
 58 63 68 73  
 aag tct aaa gag cct gat ggg gac aga gtt gtt tat acg ggt aca tat 290  
 Lys Ser Lys Glu Pro Asp Gly Asp Arg Val Val Tyr Thr Gly Thr Tyr  
 74 79 84 89  
 gac aca gaa ggt gtg acc cca acg aag agt gga gaa cgg caa ccc atc 338  
 Asp Thr Glu Gly Val Thr Pro Thr Lys Ser Gly Glu Arg Gln Pro Ile

90	95	100	105	
cag atc acc atg ccg ttc aca gac att ggg acc ttc gag aca gtg tgg				386
Gln Ile Thr Met Pro Phe Thr Asp Ile Gly Thr Phe Glu Thr Val Trp				
106	111	116	121	
caa gtc aag ttc tac aat tac cac aag cgg gat cac tgc cag tgg gga				434
Gln Val Lys Phe Tyr Asn Tyr His Lys Arg Asp His Cys Gln Trp Gly				
122	127	132	137	
agc ccc ttc tct gtc att gag tat gaa tgc aag ccc aac gag aca cgc				482
Ser Pro Phe Ser Val Ile Glu Tyr Glu Cys Lys Pro Asn Glu Thr Arg				
138	143	148	153	
agt ctg atg tgg gtg aac aag gag tcc ttc ctc tga aagt ggctctttct				532
Ser Leu Met Trp Val Asn Lys Glu Ser Phe Leu *				
154	159	164		
gatgctactg gacaatcttt tcagaaatct acttttagat aaaccagcgc aggccttaaa				592
caaggcatgc cacaccattg ctgttcccca tctggtacta atgacctact agccctgggt				652
attttgaaag tgtaattccc ctctgacaca atatccctca catacaagat ggtgatgtac				712
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ggtcatactt ttgaccactt gtgactggag ttcagtggcc ctggcaggct tgtcctgctc				832
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gctgtggacc attgttaaag tgacaggagt tgtaggggta cccctttgac aagcttccat				1252
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cacctcccac gtgggggaca gaaaggctct ctcattgggtg ccacctgcag agatagacaa	240
ggagcgcctg gccatcagag gacgctcctg acagtgcac agtgaccact ataaaagtca	300
ggcgggctga ggaggagaca aaggccagga cgctccgcag ctgttgggga agaggagctg	360
cctcctggg     atg gag aaa ttt aag gct gcg atg ttg ctg ggg agc gtc Met Glu Lys Phe Lys Ala Ala Met Leu Leu Gly Ser Val	408
1                        5                            10	
ggc gat gct ctt ggc tac aga aat gtc tgc aag gag aac agc act gta	456
Gly Asp Ala Leu Gly Tyr Arg Asn Val Cys Lys Glu Asn Ser Thr Val	
14                        19                            24                            29	
ggc atg aag atc cag gag gag ctg caa cgt tcc ggg ggc ctg gac cac	504
Gly Met Lys Ile Gln Glu Glu Leu Gln Arg Ser Gly Gly Leu Asp His	
30                        35                            40                            45	
ctc gta ctc tcg cca gga gaa tgg ccc gtg agt gac aac acc atc atg	552
Leu Val Leu Ser Pro Gly Glu Trp Pro Val Ser Asp Asn Thr Ile Met	
46                        51                            56                            61	
cac atc gca acc gcc gag gcc ctc acc aca gac tac tgg tgc ctg gat	600
His Ile Ala Thr Ala Glu Ala Leu Thr Thr Asp Tyr Trp Cys Leu Asp	
62                        67                            72                            77	
gat ctg tac cgg gag atg gtg aga tgc tat gtg gaa atc gtt gag aag	648
Asp Leu Tyr Arg Glu Met Val Arg Cys Tyr Val Glu Ile Val Glu Lys	
78                        83                            88                            93	
ctt cca gaa cgc cgg cca gac cca gct acc att gaa ggc tgt gct cag	696
Leu Pro Glu Arg Arg Pro Asp Pro Ala Thr Ile Glu Gly Cys Ala Gln	
94                        99                            104                            109	
cta aag ccc aat aac tac ctt ctc gcc tgg cac aca ccg ttc aat gaa	744
Leu Lys Pro Asn Asn Tyr Leu Leu Ala Trp His Thr Pro Phe Asn Glu	
110                        115                            120                            125	
aaa ggc tca ggg ttt gga gcg gcc acc aag gcc atg tgc atc ggc ctg	792
Lys Gly Ser Gly Phe Gly Ala Ala Thr Lys Ala Met Cys Ile Gly Leu	
126                        131                            136                            141	
cgg tac tgg laag cct gag cgg ctg gag acc ctc atc gag gtc agc gtg	840
Arg Tyr Trp Lys Pro Glu Arg Leu Glu Thr Leu Ile Glu Val Ser Val	
142                        147                            152                            157	
gaq tqc qgc cqg atq acc cac aac cat ccc aca qqc ttc ctg qgc tcc	888

Glu Cys Gly Arg Met Thr His Asn His Pro Thr Gly Phe Leu Gly Ser	
158 163 168 173	
ctg tgc acg gcc ctg ttt gtg tgc ttc gcc gca caa gga aag ccc ctg	936
Leu Cys Thr Ala Leu Phe Val Ser Phe Ala Ala Gln Gly Lys Pro Leu	
174 179 184 189	
gtc cag tgg ggg aga gac atg ctg cgg gcg gtg cct ctg gca gaa gag	984
Val Gln Trp Gly Arg Asp Met Leu Arg Ala Val Pro Leu Ala Glu Glu	
190 195 200 205	
tac tgc agg aag acc atc cgg cac acg gca gaa tac cag gag cac tgg	1032
Tyr Cys Arg Lys Thr Ile Arg His Thr Ala Glu Tyr Gln Glu His Trp	
206 211 216 221	
ttt tac ttt gaa gct aaa tgg caa ttt tat ttg gag gag agg aaa atc	1080
Phe Tyr Phe Glu Ala Lys Trp Gln Phe Tyr Leu Glu Glu Arg Lys Ile	
222 227 232 237	
agt aaa gac tca gaa aat aaa gcc atc ttc ccc gac aat tat gat gca	1128
Ser Lys Asp Ser Glu Asn Lys Ala Ile Phe Pro Asp Asn Tyr Asp Ala	
238 243 248 253	
gaa gag agg gaa aag acc tac agg aag tgg agc tgc gaa ggt cga ggg	1176
Glu Glu Arg Glu Lys Thr Tyr Arg Lys Trp Ser Ser Glu Gly Arg Gly	
254 259 264 269	
gga aga cga ggc cac gat gcc ccc atg ata gcc tat gac gcc ctc ctt	1224
Gly Arg Arg Gly His Asp Ala Pro Met Ile Ala Tyr Asp Ala Leu Leu	
270 275 280 285	
gca gca gga aac agc tgg act gag ctg tgt cac cgg gcc atg ttt cat	1272
Ala Ala Gly Asn Ser Trp Thr Glu Leu Cys His Arg Ala Met Phe His	
286 291 296 301	
gga ggg gag agc gcg gcc acg ggc acc att gca ggc tgc ctg ttc ggg	1320
Gly Gly Glu Ser Ala Ala Thr Gly Thr Ile Ala Gly Cys Leu Phe Gly	
302 307 312 317	
ttg ctg tac ggc ctg gac ctc gtt ccc aaa ggc ttg tac cag gac ctg	1368
Leu Leu Tyr Gly Leu Asp Leu Val Pro Lys Gly Leu Tyr Gln Asp Leu	
318 323 328 333	
gag gac aag gag aag ctg gag gac ctg ggc gcg gct ctc tac cgc ctg	1416
Glu Asp Lys Glu Lys Leu Glu Asp Leu Gly Ala Ala Leu Tyr Arg Leu	
334 339 344 349	
tcc aca gag gag aag taa agccat ttctgccact ttccccctag agagccgatt	1470
Ser Thr Glu Glu Lys *	
350 355	
ccaccccggg gcccgtaggg ccctctcgca gccctgggt gaggggtgtct ctgtgaggct	1530
ccactgcggt ctgtgcctga ctggccacat ctaactctct gtttccaatt tcagaatcct	1590
aactgttgca taaaatacat tgtttgtcct gcgagaatat tttccgtcct ccaccatcaa	1650

cattgacact gcgtagattt gccgcacttg gacctccatg cgtggcactc acccgcagtc 1710  
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taaaaaaaaa a 2321

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Met Phe Ala Arg Gly Leu Lys Arg Lys Cys Val Gly  
1 5 10  
cac gag gaa gac gtg gag gga gcc ctg gcc ggc ttg aag aca gtg tcc 156  
His Glu Glu Asp Val Glu Gly Ala Leu Ala Gly Leu Lys Thr Val Ser  
13 18 23 28  
tca tac agc ctg cag cgg cag tcg ctc ctg gac atg tct ctg gtg aag 204  
Ser Tyr Ser Leu Gln Arg Gln Ser Leu Leu Asp Met Ser Leu Val Lys  
29 34 39 44  
ttg cag ctt tgc cac atg ctt gtg gag ccc aac ctg tgc cgc tca gtc 252  
Leu Gln Leu Cys His Met Leu Val Glu Pro Asn Leu Cys Arg Ser Val  
45 50 55 60  
ctc att gcc aac acg gtc cgg cag atc caa gag gag atg acg cag gat 300  
Leu Ile Ala Asn Thr Val Arg Gln Ile Gln Glu Glu Met Thr Gln Asp



61	66	71	76	
ggg acg tgg cgc aca gtg gca ccc cag gct gca gag cgg gcg ccg ctc				348
Gly Thr Trp Arg Thr Val Ala Pro Gln Ala Ala Glu Arg Ala Pro Leu				
77	82	87	92	
gac cgc ttg gtc tcc acg gag atc ctg tgc cgt gca gcg tgg ggg caa				396
Asp Arg Leu Val Ser Thr Glu Ile Leu Cys Arg Ala Ala Trp Gly Gln				
93	98	103	108	
gag ggg gca cat cct gct tct ggc ttg ggg gac ggc cac aca cag ggt				444
Glu Gly Ala His Pro Ala Ser Gly Leu Gly Asp Gly His Thr Gln Gly				
109	114	119	124	
cca gtt tct gac ctt tgc cca gtc acc tca gca cag gca cca agg cac				492
Pro Val Ser Asp Leu Cys Pro Val Thr Ser Ala Gln Ala Pro Arg His				
125	130	135	140	
ctg cag agc agc gcc tgg gag atg gat ggc cct cga gaa aac aga gga				540
Leu Gln Ser Ser Ala Trp Glu Met Asp Gly Pro Arg Glu Asn Arg Gly				
141	146	151	156	
agc ttt cac aag tca ctt gat cag ata ttt gaa acg ctg gag act aaa				588
Ser Phe His Lys Ser Leu Asp Gln Ile Phe Glu Thr Leu Glu Thr Lys				
157	162	167	172	
aac ccc agc tgc atg gaa gag ctg ttc tca gac gtg gac agc ccc tac				636
Asn Pro Ser Cys Met Glu Glu Leu Phe Ser Asp Val Asp Ser Pro Tyr				
173	178	183	188	
tac gac ctg gac aca gta ctg aca ggc atg atg ggg ggt gcc agg ccg				684
Tyr Asp Leu Asp Thr Val Leu Thr Gly Met Met Gly Gly Ala Arg Pro				
189	194	199	204	
ggc ccc tgc gaa ggg ctc gag ggc ttg gct ccg gcc acc cca ggc cct				732
Gly Pro Cys Glu Gly Leu Glu Gly Leu Ala Pro Ala Thr Pro Gly Pro				
205	210	215	220	
agc tcc agc tgc aag tcc gac ctg ggc gag ctg gac cac gtg gtg gag				780
Ser Ser Ser Cys Lys Ser Asp Leu Gly Glu Leu Asp His Val Val Glu				
221	226	231	236	
atc ctg gtg gag acc tga gcagga gccctgagtg ctcacagccg cctctgacgc				834
Ile Leu Val Glu Thr *				
237	242			
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 Arg Pro Lys Lys Glu Pro Gln Thr Leu Val Ile Pro Lys Asn Ala Ala  
 13 18 23 28  
 gag gag cag aag ctc aag ctg gag cgg ctc atg aag aac ccg gac aaa 145  
 Glu Glu Gln Lys Leu Lys Leu Glu Arg Leu Met Lys Asn Pro Asp Lys  
 29 34 39 44  
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 Ala Val Pro Ile Pro Glu Lys Met Ser Glu Trp Ala Pro Arg Pro Pro  
 45 50 55 60  
 cca gaa ttt gtc cga gat gtc atg ggt tca agt gct ggg gcc ggc agt 241  
 Pro Glu Phe Val Arg Asp Val Met Gly Ser Ser Ala Gly Ala Gly Ser  
 61 66 71 76  
 gga gag ttc cac gtg tac aga cat ctg cgc cgg aga gaa tat cag cga 289  
 Gly Glu Phe His Val Tyr Arg His Leu Arg Arg Arg Glu Tyr Gln Arg  
 77 82 87 92  
 cag gac tac atg gat gcc atg gct gag aag caa aaa ttg gat gca gag 337  
 Gln Asp Tyr Met Asp Ala Met Ala Glu Lys Gln Lys Leu Asp Ala Glu  
 93 98 103 108  
 ttt cag aaa aga ctg gaa aag aat aaa att gct gca gag gag cag acc 385  
 Phe Gln Lys Arg Leu Glu Lys Asn Lys Ile Ala Ala Glu Glu Gln Thr  
 109 114 119 124  
 gca aag cgc cgg aag aag cgc cag aag tta aaa gag aag aaa tta ctg 433  
 Ala Lys Arg Arg Lys Lys Arg Gln Lys Leu Lys Glu Lys Lys Leu Leu  
 125 130 135 140  
 gcc aaa gaa gat gaa act tga ac agaagaaaca agaagggact ccggtcagct 486  
 Ala Lys Glu Asp Glu Thr \*  
 141 146  
 ccaaggagca ggggggtccag cagctcttgc ggaggcatct ggaacagagg aggaggaggg 546  
 gagtgccagt ttcacatgg ngcgatgaca aggttggcac agcctctgcc tggaacctgg 606  
 tcgtgctgtg accagaanag gaaaggcggc tgtttgggct cttttctcct cgcangggac 666  
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<400> 775

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ggTccacacc gCgaggggaag atg cgt gcg ccc att cca gag cct aag cct 470  
Met Arg Ala Pro Ile Pro Glu Pro Lys Pro  
1 5  
gga gac ctg att gag att ttt cgc cct ttc tac aga cac tgg gcc atc 518  
Gly Asp Leu Ile Glu Ile Phe Arg Pro Phe Tyr Arg His Trp Ala Ile  
11 16 21 26  
tat gtt ggc gat gga tat gtg gtt cat ctg gcc cct cca agt gag gtc 566  
Tyr Val Gly Asp Gly Tyr Val Val His Leu Ala Pro Pro Ser Glu Val  
27 32 37 42  
gca gga gct ggt gca gcc agt gtc atg tcc gcc ctg act gac aag gcc 614  
Ala Gly Ala Gly Ala Ala Ser Val Met Ser Ala Leu Thr Asp Lys Ala  
43 48 53 58  
atc gtg aag aag gaa ttg ctg tat gat gtg gcc ggg agt gac aag tac 662  
Ile Val Lys Lys Glu Leu Leu Tyr Asp Val Ala Gly Ser Asp Lys Tyr  
59 64 69 74  
cag gtc aac aac aaa cat gat gac aag tac tCG ccg ctg ccc tgc agc/ 710  
Gln Val Asn Asn Lys His Asp Asp Lys Tyr Ser Pro Leu Pro Cys Ser  
75 80 85 90  
aaa atc atc cag cgg gcg gag gag ctg gtg ggg cag gag gtg ctc tac 758

Lys Ile Ile Gln Arg Ala Glu Glu Leu Val Gly Gln Glu Val Leu Tyr  
 91 96 101 106  
 aag ctg acc agt gag aac tgc gag cac ttt gtg aat gag ctg cgc tat 806  
 Lys Leu Thr Ser Glu Asn Cys Glu His Phe Val Asn Glu Leu Arg Tyr  
 107 112 117 122  
 gga gtc gcc cgc agt gac cag gtc aga gat gtc atc atc gct gca agc 854  
 Gly Val Ala Arg Ser Asp Gln Val Arg Asp Val Ile Ile Ala Ala Ser  
 123 128 133 138  
 gtt gca gga atg ggc ttg gca gcc atg agc ctt att gga gtc atg ttc 902  
 Val Ala Gly Met Gly Leu Ala Ala Met Ser Leu Ile Gly Val Met Phe  
 139 144 149 154  
 tca aga aac aag cga caa aag caa taa ctgaa aaagactgtc ctgtcagcga 954  
 Ser Arg Asn Lys Arg Gln Lys Gln \*  
 155 160  
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 Met Glu  
 1  
 ctg gcc gcc gga agc ttc tcg gag gag cag ttc tgg gag gcc tgc gcc 163  
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 3 8 13 18  
 gag ctc cag cag ccc gct ctg gcc ggg gcc gac tgg cag ctc cta gtg 211  
 Glu Leu Gln Gln Pro Ala Leu Ala Gly Ala Asp Trp Gln Leu Leu Val  
 19 24 29 34

gag acc tcg ggc atc agc atc tac cgg ctg ctg gac aag aag act gga	259
Glu Thr Ser Gly Ile Ser Ile Tyr Arg Leu Leu Asp Lys Lys Thr Gly	
35 40 45 50	
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Leu Tyr Glu Tyr Lys Val Phe Gly Val Leu Glu Asp Cys Ser Pro Thr	
51 56 61 66	
cta ctg gca gac atc tat atg gac tca gat tac aga aaa caa tgg gac	355
Leu Leu Ala Asp Ile Tyr Met Asp Ser Asp Tyr Arg Lys Gln Trp Asp	
67 72 77 82	
cag tat gtt aaa gaa ctc tat gaa caa gaa tgc aac gga gag act gtg	403
Gln Tyr Val Lys Glu Leu Tyr Glu Gln Glu Cys Asn Gly Glu Thr Val	
83 88 93 98	
gtc tac tgg gaa gtg aag tac cct ttt ccc atg tcc aac aga gac tat	451
Val Tyr Trp Glu Val Lys Tyr Pro Phe Pro Met Ser Asn Arg Asp Tyr	
99 104 109 114	
gtc tac ctt cgg cag cgg cga gac ctg gac atg gaa ggg agg aag atc	499
Val Tyr Leu Arg Gln Arg Arg Asp Leu Asp Met Glu Gly Arg Lys Ile	
115 120 125 130	
cat gtg atc ctg gcc cgg agc acc tcc atg cct cag ctt ggc gag agg	547
His Val Ile Leu Ala Arg Ser Thr Ser Met Pro Gln Leu Gly Glu Arg	
131 136 141 146	
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Ser Gly Val Ile Arg Val Lys Gln Tyr Lys Gln Ser Leu Ala Ile Glu	
147 152 157 162	
agt gac ggc aag aag ggg agc aaa gtt ttc atg tat tac ttc gat aac	643
Ser Asp Gly Lys Lys Gly Ser Lys Val Phe Met Tyr Tyr Phe Asp Asn	
163 168 173 178	
ccg ggt ggc caa att ccg tcc tgg ctc att aac tgg gcc gcc aag aat	691
Pro Gly Gly Gln Ile Pro Ser Trp Leu Ile Asn Trp Ala Ala Lys Asn	
179 184 189 194	
gga gtt cct aac ttc ttg aaa gac atg gca aga gcc tgt cag aac tac	739
Gly Val Pro Asn Phe Leu Lys Asp Met Ala Arg Ala Cys Gln Asn Tyr	
195 200 205 210	
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Leu Lys Lys Thr *	
211	
ctggaagtgc aaccacccaa tgtctctgga agtgccacct ggaagtgcc cctggaagtg	854
tctctggaag agcaccacc actgttcagc cttcccctgc tgtttctgtc ttcagaggcc	914
taqacactac cacatccttt ctaagcatgt ttgcctgaca tccagctcac tcgtctgctt	974
cctttctcgc tccccccatc ctggggctgg gctggccttc ttctacagtt caatatgggg	1034
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1125

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Met Cys Ser Leu Ala Ser Gly Ala Thr Gly Gly Arg Gly Ala Val Glu  
1 5 10 15  
aat gag gag gac ctg cca gaa ctg tgc gac agc ggg gac gag gcc gcc 153  
Asn Glu Glu Asp Leu Pro Glu Leu Ser Asp Ser Gly Asp Glu Ala Ala  
17 22 27 32  
tgg gag gat gag gac gat gca gat ctc ccc cac ggc aag cag cag acc 201  
Trp Glu Asp Glu Asp Asp Ala Asp Leu Pro His Gly Lys Gln Gln Thr  
33 38 43 48  
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Pro Cys Leu Phe Cys Asn Arg Leu Phe Thr Ser Ala Glu Glu Thr Phe  
49 54 59 64  
tca cac tgt aag tct gag cat cag ttt aat att gac agc atg gtt cat 297  
Ser His Cys Lys Ser Glu His Gln Phe Asn Ile Asp Ser Met Val His  
65 70 75 80  
aaa cat gga ctt gaa ttt tat gga tac att aag cta ata aat ttt att 345  
Lys His Gly Leu Glu Phe Tyr Gly Tyr Ile Lys Leu Ile Asn Phe Ile  
81 86 91 96  
aga ctt aag aat cct aca gtt gag tac atg aat tcc ata tac aac cca 393  
Arg Leu Lys Asn Pro Thr Val Glu Tyr Met Asn Ser Ile Tyr Asn Pro  
97 102 107 112  
gtg cct tgg gag aaa gaa gag tat ttg aag cca gta tta gaa gat gac 441  
Val Pro Trp Glu Lys Glu Glu Tyr Leu Lys Pro Val Leu Glu Asp Asp  
113 118 123 128  
ctt tta ctt caa ttt gat gta gaa gat ctt tat gaa ccg gtg tca gta 489  
Leu Leu Leu Gln Phe Asp Val Glu Asp Leu Tyr Glu Pro Val Ser Val  
129 134 139 144  
ccc ttc tca tac ccc aat gga ctc agt gaa aat aca tct gtt gtt gaa 537  
Pro Phe Ser Tyr Pro Asn Gly Leu Ser Glu Asn Thr Ser Val Val Glu  
145 150 155 160

aaa ttg aaa cat atg gaa gcc agg gca ctg tct gct gaa gcc gca ttg	585
Lys Leu Lys His Met Glu Ala Arg Ala Leu Ser Ala Glu Ala Ala Leu	
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Ala Arg Ala Arg Glu Asp Leu Gln Lys Met Lys Gln Phe Ala Gln Asp	
177 182 187 192	
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Phe Val Met His Thr Asp Val Arg Thr Cys Ser Ser Ser Thr Ser Val	
193 198 203 208	
att gcg gac ctc cag gag gat gag gat ggt gtt tat ttc agc tca tac	729
Ile Ala Asp Leu Gln Glu Asp Glu Asp Gly Val Tyr Phe Ser Ser Tyr	
209 214 219 224	
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Gly His Tyr Gly Ile His Glu Glu Met Leu Lys Asp Lys Ile Arg Thr	
225 230 235 240	
gaa agc tac cga gat ttc ata tac caa aat cca cat atc ttc aaa gac	825
Glu Ser Tyr Arg Asp Phe Ile Tyr Gln Asn Pro His Ile Phe Lys Asp	
241 246 251 256	
aag gta gtt ttg gat gtt ggg tgt gga act gga att ctc tct atg ttt	873
Lys Val Val Leu Asp Val Gly Cys Gly Thr Gly Ile Leu Ser Met Phe	
257 262 267 272	
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Ala Ala Lys Ala Gly Ala Lys Lys Val Leu Gly Val Asp Gln Ser Glu	
273 278 283 288	
ata ctt tac cag gca atg gat att ata aga cta aat aaa ctt gaa gat	969
Ile Leu Tyr Gln Ala Met Asp Ile Ile Arg Leu Asn Lys Leu Glu Asp	
289 294 299 304	
act att aca cta att aaa gga aag att gaa gaa gtt cat ctt cct gta	1017
Thr Ile Thr Leu Ile Lys Gly Lys Ile Glu Glu Val His Leu Pro Val	
305 310 315 320	
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Glu Lys Val Asp Val Ile Ile Ser Glu Trp Met Gly Tyr Phe Leu Leu	
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Phe Glu Ser Met Leu Asp Ser Val Leu Tyr Ala Lys Asn Lys Tyr Leu	
337 342 347 352	
gca aaa gga ggc tcg gtc tac cct gac att tgc act atc agc ctt gta	1161
Ala Lys Gly Gly Ser Val Tyr Pro Asp Ile Cys Thr Ile Ser Leu Val	
353 358 363 368	
gca gtg agt gat gtg aat aaa cat gct gat aga att gct ttt tgg gat	1209
Ala Val Ser Asp Val Asn Lys His Ala Asp Arg Ile Ala Phe Trp Asp	
369 374 379 384	
gat gtc tat ggc ttc aag atg tcc tgc atg aag aaa gca gtt att cca	1257



Asp Val Tyr Gly Phe Lys Met Ser Cys Met Lys Lys Ala Val Ile Pro	
385 390 395 400	
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Glu Ala Val Val Glu Val Leu Asp Pro Lys Thr Leu Ile Ser Glu Pro	
401 406 411 416	
tgt ggt att aag cat ata gat tgc cat acg acg tct atc tca gat ttg	1353
Cys Gly Ile Lys His Ile Asp Cys His Thr Thr Ser Ile Ser Asp Leu	
417 422 427 432	
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Glu Phe Ser Ser Asp Phe Thr Leu Lys Ile Thr Arg Thr Ser Met Cys	
433 438 443 448	
acg gca att gct ggc tac ttt gat ata tat ttt gag aag aat tgc cac	1449
Thr Ala Ile Ala Gly Tyr Phe Asp Ile Tyr Phe Glu Lys Asn Cys His	
449 454 459 464	
aac agg gtc gtg ttc tct acg ggc cct cag agc acc aaa aca cac tgg	1497
Asn Arg Val Val Phe Ser Thr Gly Pro Gln Ser Thr Lys Thr His Trp	
465 470 475 480	
aaa caa aca gta ttt cta ctg gaa aaa cca ttt tca gtt aaa gca ggt	1545
Lys Gln Thr Val Phe Leu Leu Glu Lys Pro Phe Ser Val Lys Ala Gly	
481 486 491 496	
gaa gcc ttg aaa gga aag gtc aca gtt cac aag aat aag aaa gat cca	1593
Glu Ala Leu Lys Gly Lys Val Thr Val His Lys Asn Lys Lys Asp Pro	
497 502 507 512	
cgt tct ctc acc gtg acc ctc acg ttg aat aat tca act caa act tat	1641
Arg Ser Leu Thr Val Thr Leu Thr Leu Asn Asn Ser Thr Gln Thr Tyr	
513 518 523 528	
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Gly Leu Gln *	
529	
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aaacatgtaa ctgttactaa gcagtctata aagttgtcat ttacaattac tgattcaatt 2476
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cgggcggcct ggcgcggcgc tccggttaagg cgtgtgtgctg gcagggcggg gacagaaccg 180
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gggtaggaga ataacctgtg tcagcgtgtt atg atg ccg tcc cgt acc aac 411
Met Met Pro Ser Arg Thr Asn
1 5

ctg gct act gga atc ccc agt agt aaa gtg aaa tat tca agg ctc tcc 459
Leu Ala Thr Gly Ile Pro Ser Ser Lys Val Lys Tyr Ser Arg Leu Ser
8 13 18 23

agc aca gac gat ggc tac att gac ctt cag ttt aag aaa acc cct cct 507
Ser Thr Asp Asp Gly Tyr Ile Asp Leu Gln Phe Lys Lys Thr Pro Pro
24 29 34 39

aag atc cct tat aag gcc atc gca ctt gcc act gtg ctg ttt ttg att 555
Lys Ile Pro Tyr Lys Ala Ile Ala Leu Ala Thr Val Leu Phe Leu Ile
40 45 50 55

ggc gcc ttt ctc att att ata ggc tcc ctc ctg ctg tca ggc tac atc 603

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Gly Ala Phe Leu Ile Ile Ile Gly Ser Leu Leu Leu Ser Gly Tyr Ile	
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Ser Lys Gly Gly Ala Asp Arg Ala Val Pro Val Leu Ile Ile Gly Ile	
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Leu Val Phe Leu Pro Gly Phe Tyr His Leu Arg Ile Ala Tyr Tyr Ala	
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Asp *	
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 Met Ala Leu Val Pro Tyr Glu Glu Thr Thr Glu Phe Gly Leu Gln  
 1 5 10  
 aaa ttc cac aag cct ctt gca act ttt tcc ttt gca aac cac acg atc 336  
 Lys Phe His Lys Pro Leu Ala Thr Phe Ser Phe Ala Asn His Thr Ile  
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 cag atc cgg cag gac tgg aga cac ctg gga gtc gca gcg gtg gtt tgg 384  
 Gln Ile Arg Gln Asp Trp Arg His Leu Gly Val Ala Ala Val Val Trp  
 32 37 42 47  
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 Asp Ala Ala Ile Val Leu Ser Thr Tyr Leu Glu Met Gly Ala Val Glu  
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Leu Arg Gly Arg Ser Ala Val Glu Leu Gly Ala Gly Thr Gly Leu Val	
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Gly Ile Val Ala Ala Leu Leu Ala Cys Arg Ile Arg Tyr Glu Arg Asp	
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aac aac ttc tta gca atg ctg gag agg caa ttt att gtg aga aag gtt	576
Asn Asn Phe Leu Ala Met Leu Glu Arg Gln Phe Ile Val Arg Lys Val	
96 101 106 111	
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His Tyr Asp Pro Glu Lys Asp Val His Ile Tyr Glu Ala Gln Thr Arg	
112 117 122 127	
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	Met Tyr
	1
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Gly Arg Thr Leu Glu Asp Ile Phe His Glu His Met Gln Glu Leu Ile	
83 88 93 98	
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Leu Met Lys Phe Ile Tyr Thr Ser Gln Tyr Asp Asn Cys Leu Thr Tyr	
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Arg Arg Ile Tyr Leu Pro Pro Ser Arg Pro Asp Asp Leu Ile Lys Pro	
115 120 125 130	
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Gly Leu Phe Lys Gly Thr Tyr Gly Ser His Gly Leu Glu Ile Val Met	
131 136 141 146	
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Leu Ser Phe His Gly Arg Arg Ala Arg Gly Thr Lys Ile Thr Gly Asp	
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Pro Asn Ile Pro Ala Gly Gln Gln Thr Val Glu Ile Asp Leu Arg His	
163 168 173 178	
cgg atc cag ctg ccc gac ctc gag aac cag cgc aac ttc aat gag ctc	1411
Arg Ile Gln Leu Pro Asp Leu Glu Asn Gln Arg Asn Phe Asn Glu Leu	
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211 216 221 226	
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Glu Ser Gln Pro Ser Pro Ala Gln Pro Arg Ala Glu Ala Pro Ser Lys	
227 232 237 242	
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Val Leu Pro Val Gly Val Ser Ser Arg Asn Glu Asp Tyr Pro Arg Thr	
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Cys Arg Met Cys Phe Tyr Gly Thr Gly Leu Ile Ala Gly His Gly Phe	
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Phe Asp Glu Met Leu Lys Asn Ile Gln Ser Leu Thr Ser *	
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cagcagatgt aggggacagc cgtgggaccg cgtgagaatt gaagcgggtgg ggttcccgca	2240
ccctgggctg gctggtggtt ttctcgggaa gcaggaccct cctgactggt gctcttctctg	2300
tgagcggata gagtgataga ctgggtcgtg tgtgagacgc atgtgctcca cccactoct	2360

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caggcttggg gccgggactc tggagtgaat cccattttct ctaccggctt gcttggagtt	2540
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ctgagtcact agggaaatgtc acctgaatgc acagcccagc ccatgcacct gcccagccc	2660
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cagacagggc gtttgttttg tccatgcctt cctccctgca cgcacacggc gtcaaaacca	2780
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tggccacac aggtgccagg agtgcccata tgagatgacg aggaaacccc tttgcaggtg	2900
aggggacagc tttctagaaa agccacacct gcactctgggg acacactttg gaaagtggga	2960
ccctccagcc tggagacccc atggactgat gcctccactg ctgtgtgccc catgttgtgt	3020
taacacctgc gtgtggggac cccatctgag gtcttggtg aggttggcat ctctgaaga	3080
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agtgggcgtc cccagcgagc cttccctctc tgccgcttgt ccttgtgtct gggctgctcc	3200
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agggcgccag cagcgggagc cacgcagacc ccgaggcgca cctgctggct cttgtgtgtg	3560
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tggccttgaa gcctggagga ctgttgggca tgtagactgg caccttgaag attcaccatt	3740
gtttaaataa aatcaagcaa atgctttttt accaagagcc cgagcctcgc tctaagggac	3800
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tgattaaagg aatctcagat ctc	3883

<210> 781

<211> 910



<212> DNA  
 <213> Homo sapiens

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 <222> (192)..(662)

<220>  
 <221> misc\_feature  
 <222> (1)...(910)  
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 tcgtcccagc gcccaggacc gtgtctggga aaaggtcttt gcccggagag tgggaagaga 120  
 gaggggaggg tgagcagagg acaggccggg agttttccgg gaacggagga agagcagtgg 180  
 aggctgccag g atg agg ctg ctg tgt ggc ctg tgg ctg tgg ctc tcc ttg 230  
                   Met Arg Leu Leu Cys Gly Leu Trp Leu Trp Leu Ser Leu  
                   1                  5                  10  
 ctg aaa gtc ctg cag gcc cag acc cca acc ccc ctg cca ctc ccg ccc 278  
 Leu Lys Val Leu Gln Ala Gln Thr Pro Thr Pro Leu Pro Leu Pro Pro  
   14                  19                  24                  29  
 ccg atg cag agc ttc caa gga aac cag ttc cag ggg gaa tgg ttc gtc 326  
 Pro Met Gln Ser Phe Gln Gly Asn Gln Phe Gln Gly Glu Trp Phe Val  
   30                  35                  40                  45  
 ctg ggc ctg gcg ggc aac agc ttc agg ccg gag cac agg gcg ctg ctg 374  
 Leu Gly Leu Ala Gly Asn Ser Phe Arg Pro Glu His Arg Ala Leu Leu  
   46                  51                  56                  61  
 aac gct ttc acc gca act ttt gag cta agt gat gat ggc cgc ttt gag 422  
 Asn Ala Phe Thr Ala Thr Phe Glu Leu Ser Asp Asp Gly Arg Phe Glu  
   62                  67                  72                  77  
 gtg tgg aat gcg atg act cga ggc cag cac tgt gac aca tgg tct tat 470  
 Val Trp Asn Ala Met Thr Arg Gly Gln His Cys Asp Thr Trp Ser Tyr  
   78                  83                  88                  93  
 gtg ctg ata ccg gca gcc cag cct ggg cag ttc act gtg gac cac ggt 518  
 Val Leu Ile Pro Ala Ala Gln Pro Gly Gln Phe Thr Val Asp His Gly  
   94                  99                  104                  109  
 gtg gac aca cga gca ggc tgg ccg tcc tca gga tca gcc tgc tgg gca 566  
 Val Asp Thr Arg Ala Gly Trp Pro Ser Ser Gly Ser Ala Cys Trp Ala  
  110                  115                  120                  125  
 gga gct ggt tgc tgc ctc ccg gga cgc tgg acc agt tca tct gcc tgg 614  
 Gly Ala Gly Cys Cys Leu Pro Gly Arg Trp Thr Ser Ser Ser Ala Trp  
  126                  131                  136                  141  
 gca gag ctc agg gcc tct cgg atg aca aca ttg tct tcc cag atg tga 662  
 Ala Glu Leu Arg Ala Ser Arg Met Thr Thr Leu Ser Ser Gln Met \*

142	147	152	157	
ctggaggtgc	cctggacctc	agcagcctgc	cctgggtggc	agccccagcc tgaccactca 722
gacagccgcg	gcccccaagg	cctgactctt	cttgtgggag	ggcgaggctg gtcacccag 782
gccagcgtct	gttgaaggat	gaagcagctc	ctgtccggcc	cagccctgcc tcacagctgt 842
gcgagctctg	ccctcctcag	ctctcaaacc	tgaataaatg	caccaagccc agaaaaaaaa 902
aaaaaaaaac				910

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 <212> DNA  
 <213> Homo sapiens

<220>  
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ccgggtgtaa	gacgcccagc cctcctcttc	cctgtcttcg ccgcccgcgc tgctggagtc 120
actgggaccc	tctagtctgc gtgtgttagt	tgtaatcccg ccgcccctcct gtcagccctc 180
cgctccgcgc	gccctccttc cttccgcccgc	cgcagccagc ccgagggtcg gccggctgtg 240
taacactctc	ccaccccacc caccagcccg	cgggccagca cc atg gag gac gtg 294
		Met Glu Asp Val
		1
aag ctg gag ttc cct tcc ctt cca cag tgc aag gaa gac gcc gag gag		342
Lys Leu Glu Phe Pro Ser Leu Pro Gln Cys Lys Glu Asp Ala Glu Glu		
5 10 15 20		
tgg acc tac cct atg aga cga gag atg cag gaa att tta cct gga ttg		390
Trp Thr Tyr Pro Met Arg Arg Glu Met Gln Glu Ile Leu Pro Gly Leu		
21 26 31 36		
ttc tta ggc cca tat tca tct gct atg aaa agc aag cta cct gta cta		438
Phe Leu Gly Pro Tyr Ser Ser Ala Met Lys Ser Lys Leu Pro Val Leu		
37 42 47 52		
cag aaa cat gga ata acc cat ata ata tgc ata cga caa aat att gaa		486
Gln Lys His Gly Ile Thr His Ile Ile Cys Ile Arg Gln Asn Ile Glu		
53 58 63 68		
gca aac ttt att aaa cca aac ttt cag cag tta ttt aga tat tta gtc		534
Ala Asn Phe Ile Lys Pro Asn Phe Gln Gln Leu Phe Arg Tyr Leu Val		
69 74 79 84		

ctg gat att gca gat aat cca gtt gaa aat ata ata cgt ttt ttc cct	582
Leu Asp Ile Ala Asp Asn Pro Val Glu Asn Ile Ile Arg Phe Phe Pro	
85 90 95 100	
atg act aag gaa ttt att gat ggg agc tta caa atg gga gga aaa gtt	630
Met Thr Lys Glu Phe Ile Asp Gly Ser Leu Gln Met Gly Gly Lys Val	
101 106 111 116	
ctt gtg cat gga aat gca ggg atc tcc aga agt gca gcc ttt gtt att	678
Leu Val His Gly Asn Ala Gly Ile Ser Arg Ser Ala Ala Phe Val Ile	
117 122 127 132	
gca tac att atg gaa aca ttt gga atg aag tac aga gat gct ttt gct	726
Ala Tyr Ile Met Glu Thr Phe Gly Met Lys Tyr Arg Asp Ala Phe Ala	
133 138 143 148	
tat gtt caa gaa aga aga ttt tgt att aat cct aat gct gga ttt gtc	774
Tyr Val Gln Glu Arg Arg Phe Cys Ile Asn Pro Asn Ala Gly Phe Val	
149 154 159 164	
cat caa ctt cag gaa tat gaa gcc atc tac cta gca aaa tta aca ata	822
His Gln Leu Gln Glu Tyr Glu Ala Ile Tyr Leu Ala Lys Leu Thr Ile	
165 170 175 180	
cag atg atg tca cca ctc cag ata gaa agg tca tta tct gtt cat tct	870
Gln Met Met Ser Pro Leu Gln Ile Glu Arg Ser Leu Ser Val His Ser	
181 186 191 196	
ggc acc aca ggc agt ttg aag aga aca cat gaa gaa gag gat gat ttt	918
Gly Thr Thr Gly Ser Leu Lys Arg Thr His Glu Glu Glu Asp Asp Phe	
197 202 207 212	
gga acc atg caa gtg gcg act gca cag aat ggc tga cttg aagagcaaca	968
Gly Thr Met Gln Val Ala Thr Ala Gln Asn Gly *	
213 218 223	
tcatagagtg tgaatttcta tttgggaagg agaaaataca agagaaaatt ataatgtaaa	1028
aaaaaaaaaa aaa	1041

<210> 783  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (96)..(725)

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Met Glu Pro Leu Ala Ala	

tac ccg cta aaa tgt tcc ggg ccc aga gca aag gta ttt gca gtt ttg	161
Tyr Pro Leu Lys Cys Ser Gly Pro Arg Ala Lys Val Phe Ala Val Leu	
7 12 17 22	
ctg tct ata gtt cta tgc aca gta acg cta ttt ctt cta caa cta aaa	209
Leu Ser Ile Val Leu Cys Thr Val Thr Leu Phe Leu Leu Gln Leu Lys	
23 28 33 38	
ttc ctc aaa cct aaa atc aac agc ttt tat gcc ttt gaa gtg aag gat	257
Phe Leu Lys Pro Lys Ile Asn Ser Phe Tyr Ala Phe Glu Val Lys Asp	
39 44 49 54	
gca aaa gga aga act gtt tct ctg gaa aag tat aaa ggc aaa gtt tca	305
Ala Lys Gly Arg Thr Val Ser Leu Glu Lys Tyr Lys Gly Lys Val Ser	
55 60 65 70	
cta gtt gta aac gtg gcc agt gac tgc caa ctc aca gac aga aat tac	353
Leu Val Val Asn Val Ala Ser Asp Cys Gln Leu Thr Asp Arg Asn Tyr	
71 76 81 86	
tta ggg ctg aag gaa ctg cac aaa gag ttt gga cca tcc cac ttc agc	401
Leu Gly Leu Lys Glu Leu His Lys Glu Phe Gly Pro Ser His Phe Ser	
87 92 97 102	
gtg ttg gct ttt ccc tgc aat cag ttt gga gaa tcg gag ccc cgc cca	449
Val Leu Ala Phe Pro Cys Asn Gln Phe Gly Glu Ser Glu Pro Arg Pro	
103 108 113 118	
agc aag gaa gta gaa tct ttt gca aga aaa aac tac gga gta act ttc	497
Ser Lys Glu Val Glu Ser Phe Ala Arg Lys Asn Tyr Gly Val Thr Phe	
119 124 129 134	
ccc atc ttc cac aag att aag att cta gga tct gaa gga gaa cct gca	545
Pro Ile Phe His Lys Ile Lys Ile Leu Gly Ser Glu Gly Glu Pro Ala	
135 140 145 150	
ttt aga ttt ctt gtt gat tct tca aag aag gaa cca agg tgg aat ttt	593
Phe Arg Phe Leu Val Asp Ser Ser Lys Lys Glu Pro Arg Trp Asn Phe	
151 156 161 166	
tgg aag tat ctt gtc aac cct gag ggt caa gtt gtg aag ttc tgg agg	641
Trp Lys Tyr Leu Val Asn Pro Glu Gly Gln Val Val Lys Phe Trp Arg	
167 172 177 182	
cca gag gag ccc att gaa gtc atc agg cct gac ata gca gct ctg gtt	689
Pro Glu Glu Pro Ile Glu Val Ile Arg Pro Asp Ile Ala Ala Leu Val	
183 188 193 198	
aga caa gtg atc ata aaa aag aaa gag gat cta tga gaat gccattgcgt	739
Arg Gln Val Ile Ile Lys Lys Lys Glu Asp Leu *	
199 204 209	
ttttaataga acagagaaat gtctccatga gggtttggtc tcattttaaa catttttttt	799
ttggagacag tgtctcactc tgtcaccacag gctggagtgc agtagtgcgt tctcagctca	859

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ttgcaacctc tgccttttta aacatgctat taaatgtggc aatgaaggat ttttttttaa 919
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aatcaagag tagccaaaga atcaacatga aatatattaa ctacttcctc tgaccatact 1039
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cactgtgtat gactgaaatt tctggaataa ctgtaaatgg ttatgttaat ggaataaaac 1219
acaaatgttg aaaaatgtaa aatatatata catagattca aatccttata tatgtatgct 1279
tgttttgtgt acaggatttt gttttttctt ttttaagtaca gggttcctagt gttttactat 1339
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aacatttgaa aaaaaaaaaa 1417

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<210> 784
<211> 715
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (58) .. (636)

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atg agc ccg cgg cgg acc ctc ccg cgc ccc ctc tcg ctc tgc ctc tcc 105
Met Ser Pro Arg Arg Thr Leu Pro Arg Pro Leu Ser Leu Cys Leu Ser
1 5 10 15

ctc tgc ctc tgc ctc tgc ctg gcc gcg gct ctg gga agt gcg cag tcc 153
Leu Cys Leu Cys Leu Cys Leu Ala Ala Ala Leu Gly Ser Ala Gln Ser
17 22 27 32

ggg tcg tgt agg gat aaa aag aac tgt aag gtg gtc ttt tcc cag cag 201
Gly Ser Cys Arg Asp Lys Lys Asn Cys Lys Val Val Phe Ser Gln Gln
33 38 43 48

gaa ctg agg aag cgg cta aca ccc ctg cag tac cat gtc act cag gag 249
Glu Leu Arg Lys Arg Leu Thr Pro Leu Gln Tyr His Val Thr Gln Glu
49 54 59 64

aaa ggg acc gaa agt gcc ttt gaa gga gaa tac aca cat cac aaa gat 297
Lys Gly Thr Glu Ser Ala Phe Glu Gly Glu Tyr Thr His His Lys Asp
65 70 75 80

cct gga ata tat aaa tgt gtt gtt tgt gga act cca ttg ttt aag tca 345
Pro Gly Ile Tyr Lys Cys Val Val Cys Gly Thr Pro Leu Phe Lys Ser

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81	86	91	96	
gaa acc aaa ttt gac tcc ggt tca ggt tgg cct tca ttc cac gat gtg				393
Glu Thr Lys Phe Asp Ser Gly Ser Gly Trp Pro Ser Phe His Asp Val				
97	102	107	112	
atc aat tct gag gca atc aca ttc aca gat gac ttt tcc tat ggg atg				441
Ile Asn Ser Glu Ala Ile Thr Phe Thr Asp Asp Phe Ser Tyr Gly Met				
113	118	123	128	
cac agg gtg gaa aca agc tgc tct cag tgt ggt gct cac ctt ggg cac				489
His Arg Val Glu Thr Ser Cys Ser Gln Cys Gly Ala His Leu Gly His				
129	134	139	144	
att ttt gat gat ggg cct cgt cca act ggg aaa aga tac tgc ata aat				537
Ile Phe Asp Asp Gly Pro Arg Pro Thr Gly Lys Arg Tyr Cys Ile Asn				
145	150	155	160	
tcg gct gcc ttg tct ttt aca cct gcg gat agc agt ggc acc gcc gag				585
Ser Ala Ala Leu Ser Phe Thr Pro Ala Asp Ser Ser Gly Thr Ala Glu				
161	166	171	176	
gga ggc agt ggg gtc gcc agc ccg gcc cag gca gac aaa gcg gag ctc				633
Gly Gly Ser Gly Val Ala Ser Pro Ala Gln Ala Asp Lys Ala Glu Leu				
177	182	187	192	
tag agta atggagagtg atggaaacaa agtgtactta atgcacagct tattaataaaa				690
*				
193				
atcaaaattg ttaaaaaaaaa aaaaa				715

<210> 785  
 <211> 1062  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (188)..(745)

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ggaagtgcgc agtccgctct tgcccctggt ctttgcttct cgttttggtg gagaagatat	180
cacagtg atg tct gca ttc aac ctg ctg cat ttg gtg aca aag agc cag	229
Met Ser Ala Phe Asn Leu Leu His Leu Val Thr Lys Ser Gln	
1 5 10	
cca gta gcc ctt cga gcc tgt ggg ctt ccc tca ggg tcg tgt agg gat	277
Pro Val Ala Leu Arg Ala Cys Gly Leu Pro Ser Gly Ser Cys Arg Asp	

15	20	25	30	
aaa aag aac tgt aag gtg gtc ttt tcc cag cac gaa ctg agg aag cgg				325
Lys Lys Asn Cys Lys Val Val Phe Ser Gln His Glu Leu Arg Lys Arg				
31	36	41	46	
cta aca ccc ctg cag tac cat gtc act cag gag aaa ggg acc gaa agt				373
Leu Thr Pro Leu Gln Tyr His Val Thr Gln Glu Lys Gly Thr Glu Ser				
47	52	57	62	
gcc ttt gaa gga gaa tac aca cat cac aaa gat cct gga ata tat aaa				421
Ala Phe Glu Gly Glu Tyr Thr His His Lys Asp Pro Gly Ile Tyr Lys				
63	68	73	78	
tgt gtt gtt tgt gga act cca ttg ttt aag tca gaa acc aaa ttt gac				469
Cys Val Val Cys Gly Thr Pro Leu Phe Lys Ser Glu Thr Lys Phe Asp				
79	84	89	94	
tcc ggt tca ggt tgg cct tca ttc cac gat gtg atc aat tct gag gca				517
Ser Gly Ser Gly Trp Pro Ser Phe His Asp Val Ile Asn Ser Glu Ala				
95	100	105	110	
atc aca ttc aca gat gac ttt tcc tat ggg atg cac agg gtg gaa aca				565
Ile Thr Phe Thr Asp Asp Phe Ser Tyr Gly Met His Arg Val Glu Thr				
111	116	121	126	
agc tgc tct cag tgt ggt gct cac ctt ggg cac att ttt gat gat ggg				613
Ser Cys Ser Gln Cys Gly Ala His Leu Gly His Ile Phe Asp Asp Gly				
127	132	137	142	
cct cgt cca act ggg aaa aga tac tgc ata aat tgc gct gcc ttg tct				661
Pro Arg Pro Thr Gly Lys Arg Tyr Cys Ile Asn Ser Ala Ala Leu Ser				
143	148	153	158	
ttt aca cct gcg gat agc agt ggc acc gcc gag gga ggc agt ggg gtc				709
Phe Thr Pro Ala Asp Ser Ser Gly Thr Ala Glu Gly Gly Ser Gly Val				
159	164	169	174	
gcc agc ccg gcc cag gca gac aaa gcg gag ctc tag agta atggagagtg				759
Ala Ser Pro Ala Gln Ala Asp Lys Ala Glu Leu *				
175	180	185		
atggaaacaa agtgtactta atgcacagct tattaataaaa atcaaaattg ttatcttaat				819
agatatatattt tttcaaaaac tataagggca gttttgtgct attgatattt tttcttcttt				879
tgcttaaaca gaagccctgg ccatccatgt attttgcaat tgactagatc aagaactgtt				939
tatagcttta gcaaattggag acagctttgt gaaacttctt cacaagccac ttataccctt				999
tggcattctt ttctttgagc acatggcttc ttttgcagtt tttccccct tgattcagaa				1059
gca				1062

<210> 786  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (62)..(862)

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 Met Gln Gly Ser Thr Arg Arg Met Gly Val Met Thr Asp Val His  
 1 5 10  
 cgg cgc ttc ctc cag ttg ctg atg acc cat ggc gtg cta gag gaa tgg 154  
 Arg Arg Phe Leu Gln Leu Leu Met Thr His Gly Val Leu Glu Glu Trp  
 16 21 26 31  
 gac gtg aag cgc ttg cag acg cac tgc tac aag gtc cat gac cgc aat 202  
 Asp Val Lys Arg Leu Gln Thr His Cys Tyr Lys Val His Asp Arg Asn  
 32 37 42 47  
 gcc acc gta gat aag ttg gag gac ttc atc aac aac att aac agt gtc 250  
 Ala Thr Val Asp Lys Leu Glu Asp Phe Ile Asn Asn Ile Asn Ser Val  
 48 53 58 63  
 ttg gag tcc ttg tat att gag ata aag aga gga gtc acg gaa gat gat 298  
 Leu Glu Ser Leu Tyr Ile Glu Ile Lys Arg Gly Val Thr Glu Asp Asp  
 64 69 74 79  
 ggg aga ccc att tat gcg ttg gtg aat ctt gct aca act tca att tcc 346  
 Gly Arg Pro Ile Tyr Ala Leu Val Asn Leu Ala Thr Thr Ser Ile Ser  
 80 85 90 95  
 aaa atg gct acg gat ttt gca gag aat gaa ctg gat ttg ttt aga aag 394  
 Lys Met Ala Thr Asp Phe Ala Glu Asn Glu Leu Asp Leu Phe Arg Lys  
 96 101 106 111  
 gct ctg gaa ctg att att gac tca gaa acc ggc ttt gcg tct tcc aca 442  
 Ala Leu Glu Leu Ile Ile Asp Ser Glu Thr Gly Phe Ala Ser Ser Thr  
 112 117 122 127  
 aac ata ttg aac ctg gtt gat caa ctt aaa ggc aag aag atg agg aag 490  
 Asn Ile Leu Asn Leu Val Asp Gln Leu Lys Gly Lys Lys Met Arg Lys  
 128 133 138 143  
 aag gaa gcg gag cag gtg ctg cag aag ttt gtt caa aac aag tgg ctg 538  
 Lys Glu Ala Glu Gln Val Leu Gln Lys Phe Val Gln Asn Lys Trp Leu  
 144 149 154 159  
 att gag aag gaa ggg gag ttc acc ctg cac ggc cgg gcc atc ctg gag 586  
 Ile Glu Lys Glu Gly Glu Phe Thr Leu His Gly Arg Ala Ile Leu Glu  
 160 165 /170 175  
 atg gag caa tac atc cgg gag acg tac ccc gac gcg gtg aag atc tgc 634



Met	Glu	Gln	Tyr	Ile	Arg	Glu	Thr	Tyr	Pro	Asp	Ala	Val	Lys	Ile	Cys	
176					181					186					191	
aat atc tgt cac agc ctc ctc atc cag ggt caa agc tgc gaa acc tgt																682
Asn	Ile	Cys	His	Ser	Leu	Leu	Ile	Gln	Gly	Gln	Ser	Cys	Glu	Thr	Cys	
192					197					202					207	
ggg atc agg atg cac tta ccc tgc gtg gcc aag tac ttc cag tgc aat																730
Gly	Ile	Arg	Met	His	Leu	Pro	Cys	Val	Ala	Lys	Tyr	Phe	Gln	Ser	Asn	
208					213					218					223	
gct gaa ccg cgc tgc ccc cac tgc aac gac tac tgg ccc cac gag atc																778
Ala	Glu	Pro	Arg	Cys	Pro	His	Cys	Asn	Asp	Tyr	Trp	Pro	His	Glu	Ile	
224					229					234					239	
cca aaa gtc ttc gac cct gag aag gag agg gag tct ggt gtc ttg aaa																826
Pro	Lys	Val	Phe	Asp	Pro	Glu	Lys	Glu	Arg	Glu	Ser	Gly	Val	Leu	Lys	
240					245					250					255	
tcg aac aaa aag tcc ctg cgg tcc agg cag cat tag ccat cgtgccctgc																876
Ser	Asn	Lys	Lys	Ser	Leu	Arg	Ser	Arg	Gln	His	*					
256					261					266						
tgaggggctg gctgccttga gtggcctgat cgccacagcc cttcttggaa gaaaggcgtc																936
cgtgtttcag gttccacgcg agtcacctct ttcgtcttaa tgttaccgt ccacagcttt																996
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Met Val Asp Ile Leu Gly Glu Arg His																
1 5																
ctg gtg acc tgt aag ggc gcg acg gtg gag gcc gag gcg gcg ctg cag																159
Leu Val Thr Cys Lys Gly Ala Thr Val Glu Ala Glu Ala Ala Leu Gln																
10 15 20 25																
aac aag gtg gtg gca ctg tac ttc gcg gcg gcc cgg tgc gcg ccg agc																207
Asn Lys Val Val Ala Leu Tyr Phe Ala Ala Ala Arg Cys Ala Pro Ser																
26 31 36 41																
cgc gac ttc acg ccg ctg ctc tgc gac ttc tat acg gcg ctg gtg gcc																255

Arg	Asp	Phe	Thr	Pro	Leu	Leu	Cys	Asp	Phe	Tyr	Thr	Ala	Leu	Val	Ala		
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Glu	Ala	Arg	Arg	Pro	Ala	Pro	Phe	Glu	Val	Val	Phe	Val	Ser	Ala	Asp		
58					63					68					73		
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Gly	Ser	Ser	Gln	Glu	Met	Leu	Asp	Phe	Met	Arg	Glu	Leu	His	Gly	Ala		
74					79					84					89		
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Trp	Leu	Ala	Leu	Pro	Phe	His	Asp	Pro	Tyr	Arg	His	Glu	Leu	Arg	Lys		
90					95					100					105		
agg tac aac gtc aca gcc atc ccc aag ctt gtg att gtg aaa caa aat 447																	
Arg	Tyr	Asn	Val	Thr	Ala	Ile	Pro	Lys	Leu	Val	Ile	Val	Lys	Gln	Asn		
106					111					116					121		
ggg gag gtc atc acc aac aaa ggg cgg aag cag atc cgg gaa cgg ggg 495																	
Gly	Glu	Val	Ile	Thr	Asn	Lys	Gly	Arg	Lys	Gln	Ile	Arg	Glu	Arg	Gly		
122					127					132					137		
ttg gcc tgc ttc cag gac tgg gtg gag gcg gcc gat atc ttc cag aat 543																	
Leu	Ala	Cys	Phe	Gln	Asp	Trp	Val	Glu	Ala	Ala	Asp	Ile	Phe	Gln	Asn		
138					143					148					153		
ttc tcc gtt tga agt gggagggacc tcagagggcc aggacaggtg ctgcttctcc 598																	
Phe	Ser	Val	*														
154																	
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 Met Ile Leu  
 1  
 tat gtg tcc aag cta aac aaa atc att cac ttc cct gat ttt gat aag 165  
 Tyr Val Ser Lys Leu Asn Lys Ile Ile His Phe Pro Asp Phe Asp Lys  
 4 9 14 19  
 aaa att cct gta aag ctg ttt cct ctg cct ctc ctc tac gtt gga aac 213  
 Lys Ile Pro Val Lys Leu Phe Pro Leu Pro Leu Leu Tyr Val Gly Asn  
 20 25 30 35  
 cac ata agt gga tta tca agc aca agt aaa tta agc cta ccg atg ttc 261  
 His Ile Ser Gly Leu Ser Ser Thr Ser Lys Leu Ser Leu Pro Met Phe  
 36 41 46 51  
 acc gtg ctc agg aaa ttc acc att cca ctt acc tta ctt ctg gaa acc 309  
 Thr Val Leu Arg Lys Phe Thr Ile Pro Leu Thr Leu Leu Leu Glu Thr  
 52 57 62 67  
 atc ata ctt ggg aag cag tat tca ctc aac atc atc ctc agt gtc ttt 357  
 Ile Ile Leu Gly Lys Gln Tyr Ser Leu Asn Ile Ile Leu Ser Val Phe  
 68 73 78 83  
 gcc att att ctc ggg gct ttc ata gca gct ggg tct gac ctt gct ttt 405  
 Ala Ile Ile Leu Gly Ala Phe Ile Ala Ala Gly Ser Asp Leu Ala Phe  
 84 89 94 99  
 aac tta gaa ggc tat att ttt gta ttc ctg aat gat atc ttc aca gca 453  
 Asn Leu Glu Gly Tyr Ile Phe Val Phe Leu Asn Asp Ile Phe Thr Ala  
 100 105 110 115  
 gca aat gga gtt tat acc aaa cag aaa atg gac cca aag gag cta ggg 501  
 Ala Asn Gly Val Tyr Thr Lys Gln Lys Met Asp Pro Lys Glu Leu Gly  
 116 121 126 131  
 aaa tac gga gta ctt ttc tac aat gcc tgc ttc atg att atc cca act 549  
 Lys Tyr Gly Val Leu Phe Tyr Asn Ala Cys Phe Met Ile Ile Pro Thr  
 132 137 142 147  
 ctt att att agt gtc tcc act gga gac ctg caa cag gct act gaa ttc 597  
 Leu Ile Ile Ser Val Ser Thr Gly Asp Leu Gln Gln Ala Thr Glu Phe  
 148 153 158 163  
 aac caa tgg aag aat gtt gtg ttt atc cta cag ttt ctt ctt tcc tgt 645  
 Asn Gln Trp Lys Asn Val Val Phe Ile Leu Gln Phe Leu Leu Ser Cys  
 164 169 174 179  
 ttt ttg ggg ttt ctg ctg atg tac tcc acg gtt ctg tgc agc tat tac 693  
 Phe Leu Gly Phe Leu Leu Met Tyr Ser Thr Val Leu Cys Ser Tyr Tyr  
 180 185 190 195  
 aat tca gcc ctg acg aca gca gtg gtt gga gcc atc aag aat gta tcc 741  
 Asn Ser Ala Leu Thr Thr Ala Val Val Gly Ala Ile Lys Asn Val Ser

196	201	206	211	
ggt gcc tac att ggg ata tta atc ggt gga gac tac att ttc tct ttg				789
Val Ala Tyr Ile Gly Ile Leu Ile Gly Gly Asp Tyr Ile Phe Ser Leu				
212	217	222	227	
tta aac ttt gta ggg tta aat att tgc atg gca ggg ggc ttg aga tat				837
Leu Asn Phe Val Gly Leu Asn Ile Cys Met Ala Gly Gly Leu Arg Tyr				
228	233	238	243	
tcc ttt tta aca ctg agc agc cag tta aaa cct aaa cct gtg ggt gaa				885
Ser Phe Leu Thr Leu Ser Ser Gln Leu Lys Pro Lys Pro Val Gly Glu				
244	249	254	259	
gaa aac atc tgt ttg gat ttg aag agc taa a gagtctgcag caggattgga				936
Glu Asn Ile Cys Leu Asp Leu Lys Ser *				
260	265			
gactgacttg tgactgcggg ctgggggggc attcccagta ggaatgtgaa gccagagggt				996
tcggattcgt gacatccacc ccctgggcaa gtgagagcat ctgcaaaatg caaagagaac				1056
tacctcatat gcaggatgag ccaatggcag tctcaagaaa tgtactcggg cgacacctta				1116
cctgtggaaa gcaaactctt tcaaaataag ccaactgggac tcggtaggtg gagccccagc				1176
tgctcttcta gggacctatg gggccttcgt ggcattctctg tgctgtgtgc tggggaggag				1236
gttgatgtaa tgggtgactct tttctgatca gcaccttggc cgtgattccc aagggtccag				1296
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gttaactgcc agtaaagtta tttgttagct ttgatgaaag ctatgttggt atctttccct				1416
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	Met Ile Leu
	1
tat gtg tcc aag cta aac aaa atc att cac ttc cct gat ttt gat aag	165
Tyr Val Ser Lys Leu Asn Lys Ile Ile His Phe Pro Asp Phe Asp Lys	

4	9	14	19	
aaa att cct gta aag ctg ttt cct ctg cct ctc ctc tac gtt gga aac				213
Lys Ile Pro Val Lys Leu Phe Pro Leu Pro Leu Leu Tyr Val Gly Asn				
20	25	30	35	
cac ata agt gga tta tca agc aca agt aaa tta aga gat agc att tca				261
His Ile Ser Gly Leu Ser Ser Thr Ser Lys Leu Arg Asp Ser Ile Ser				
36	41	46	51	
cca tgt tgc cca ggc tgg tct cga act cca cca tgc cca gcc agc cta				309
Pro Cys Cys Pro Gly Trp Ser Arg Thr Pro Pro Cys Pro Ala Ser Leu				
52	57	62	67	
ccg atg ttc acc gtg ctc agg aaa ttc acc att cca ctt acc tta ctt				357
Pro Met Phe Thr Val Leu Arg Lys Phe Thr Ile Pro Leu Thr Leu Leu				
68	73	78	83	
ctg gaa acc atc ata ctt ggg aag cag tat tca ctc aac atc atc ctc				405
Leu Glu Thr Ile Ile Leu Gly Lys Gln Tyr Ser Leu Asn Ile Ile Leu				
84	89	94	99	
agt gtc ttt gcc att att ctc ggg gct ttc ata gca gct ggg tct gac				453
Ser Val Phe Ala Ile Ile Leu Gly Ala Phe Ile Ala Ala Gly Ser Asp				
100	105	110	115	
ctt gct ttt aac tta gaa ggc tat att ttt gta ttc ctg aat gat atc				501
Leu Ala Phe Asn Leu Glu Gly Tyr Ile Phe Val Phe Leu Asn Asp Ile				
116	121	126	131	
ttc aca gca gca aat gga gtt tat acc aaa cag aaa atg gac cca aag				549
Phe Thr Ala Ala Asn Gly Val Tyr Thr Lys Gln Lys Met Asp Pro Lys				
132	137	142	147	
gag cta ggg aaa tac gga gta ctt ttc tac aat gcc tgc ttc atg att				597
Glu Leu Gly Lys Tyr Gly Val Leu Phe Tyr Asn Ala Cys Phe Met Ile				
148	153	158	163	
atc cca act ctt att att agt gtc tcc act gga gac ctg caa cag gct				645
Ile Pro Thr Leu Ile Ile Ser Val Ser Thr Gly Asp Leu Gln Gln Ala				
164	169	174	179	
act gaa ttc aac caa tgg aag aat gtt gtg ttt atc cta cag ttt ctt				693
Thr Glu Phe Asn Gln Trp Lys Asn Val Val Phe Ile Leu Gln Phe Leu				
180	185	190	195	
ctt tcc tgt ttt ttg ggg ttt ctg ctg atg tac tcc acg gtt ctg tgc				741
Leu Ser Cys Phe Leu Gly Phe Leu Leu Met Tyr Ser Thr Val Leu Cys				
196	201	206	211	
agc tat tac aat tca gcc ctg acg aca gca gtg gtt gga gcc atc aag				789
Ser Tyr Tyr Asn Ser Ala Leu Thr Thr Ala Val Val Gly Ala Ile Lys				
212	217	222	227	
aat gta tcc gtt gcc tac att ggg ata tta atc ggt gga gac tac att				837
Asn Val Ser Val Ala Tyr Ile Gly Ile Leu Ile Gly Gly Asp Tyr Ile				
228	233	238	243	

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NAME	AGE	SEX	RELATION	DATE	PLACE	REMARKS
JOHN	18	M	Son	1900	100	100
MARY	15	F	Daughter	1900	100	100
JOHN	12	M	Son	1900	100	100
MARY	10	F	Daughter	1900	100	100
JOHN	8	M	Son	1900	100	100
MARY	6	F	Daughter	1900	100	100
JOHN	4	M	Son	1900	100	100
MARY	2	F	Daughter	1900	100	100
JOHN	1	M	Son	1900	100	100
MARY	0	F	Daughter	1900	100	100

[illegible][illegible]

NAME	AGE	SEX	RELATION	DATE	PLACE	REMARKS
JOHN	18	M	Son	1900	100	100
MARY	15	F	Daughter	1900	100	100
JOHN	12	M	Son	1900	100	100
MARY	10	F	Daughter	1900	100	100
JOHN	8	M	Son	1900	100	100
MARY	6	F	Daughter	1900	100	100
JOHN	4	M	Son	1900	100	100
MARY	2	F	Daughter	1900	100	100
JOHN	1	M	Son	1900	100	100
MARY	0	F	Daughter	1900	100	100

NAME	AGE	SEX	RELATION	DATE	PLACE	REMARKS
JOHN	18	M	Son	1900	100	100
MARY	15	F	Daughter	1900	100	100
JOHN	12	M	Son	1900	100	100
MARY	10	F	Daughter	1900	100	100
JOHN	8	M	Son	1900	100	100
MARY	6	F	Daughter	1900	100	100
JOHN	4	M	Son	1900	100	100
MARY	2	F	Daughter	1900	100	100
JOHN	1	M	Son	1900	100	100
MARY	0	F	Daughter	1900	100	100

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NAME	AGE	SEX	RELATION	DATE	PLACE	REMARKS
JOHN	18	M	Son	1900	100	100
MARY	15	F	Daughter	1900	100	100
JOHN	12	M	Son	1900	100	100
MARY	10	F	Daughter	1900	100	100
JOHN	8	M	Son	1900	100	100
MARY	6	F	Daughter	1900	100	100
JOHN	4	M	Son	1900	100	100
MARY	2	F	Daughter	1900	100	100

cac ata agt gga tta tca agc aca agt aaa tta agg tct gac ctt gct His Ile Ser Gly Leu Ser Ser Thr Ser Lys Leu Arg Ser Asp Leu Ala 36 41 46 51	261
ttt aac tta gaa ggc tat att ttt gta ttc ctg aat gat atc ttc aca Phe Asn Leu Glu Gly Tyr Ile Phe Val Phe Leu Asn Asp Ile Phe Thr 52 57 62 67	309
gca gca aat gga gtt tat acc aaa cag aaa atg gac cca aag gag cta Ala Ala Asn Gly Val Tyr Thr Lys Gln Lys Met Asp Pro Lys Glu Leu 68 73 78 83	357
ggg aaa tac gga gta ctt ttc tac aat gcc tgc ttc atg att atc cca Gly Lys Tyr Gly Val Leu Phe Tyr Asn Ala Cys Phe Met Ile Ile Pro 84 89 94 99	405
act ctt att att agt gtc tcc act gga gac ctg caa cag gct act gaa Thr Leu Ile Ile Ser Val Ser Thr Gly Asp Leu Gln Gln Ala Thr Glu 100 105 110 115	453
ttc aac caa tgg aag aat gtt gtg ttt atc cta cag ttt ctt ctt tcc Phe Asn Gln Trp Lys Asn Val Val Phe Ile Leu Gln Phe Leu Leu Ser 116 121 126 131	501
tgt ttt ttg ggg ttt ctg ctg atg tac tcc acg gtt ctg tgc agc tat Cys Phe Leu Gly Phe Leu Leu Met Tyr Ser Thr Val Leu Cys Ser Tyr 132 137 142 147	549
tac aat tca gcc ctg acg aca gca gtg gtt gga gcc atc aag aat gta Tyr Asn Ser Ala Leu Thr Thr Ala Val Val Gly Ala Ile Lys Asn Val 148 153 158 163	597
tcc gtt gcc tac att ggg ata tta atc ggt gga gac tac att ttc tct Ser Val Ala Tyr Ile Gly Ile Leu Ile Gly Gly Asp Tyr Ile Phe Ser 164 169 174 179	645
ttg tta aac ttt gta ggg tta aat att tgc atg gca ggg ggc ttg aga Leu Leu Asn Phe Val Gly Leu Asn Ile Cys Met Ala Gly Gly Leu Arg 180 185 190 195	693
tat tcc ttt tta aca ctg agc agc cag tta aaa cct aaa cct gtg ggt Tyr Ser Phe Leu Thr Leu Ser Ser Gln Leu Lys Pro Lys Pro Val Gly 196 201 206 211	741
gaa gaa aac atc tgt ttg gat ttg aag agc taa agagtctg cagcaggatt Glu Glu Asn Ile Cys Leu Asp Leu Lys Ser * 212 217 222	792
ggagactgac ttgtgactgc gggctggggg ggcattccca gtaggaatgt gaagccagag	852
gtttcgggatt cgtgacatcc acccctggg caagtgagag catctgcaaa atgcaaagag	912
aactacctca tatgcaggat gagccaatgg cagtctcaag aaatgtactc gggcgacacc	972
ttacctgtgg aaagcaaadc ttttcaaaat aagccactgg gactcggtag gtggagcccc	1032

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Met Ile Leu  
1  
tat gtg tcc aag cta aac aaa atc att cac ttc cct gat ttt gat aag 165  
Tyr Val Ser Lys Leu Asn Lys Ile Ile His Phe Pro Asp Phe Asp Lys  
4 9 14 19  
aaa att cct gta aag ctg ttt cct ctg cct ctc ctc tac gtt gga aac 213  
Lys Ile Pro Val Lys Leu Phe Pro Leu Pro Leu Leu Tyr Val Gly Asn  
20 25 30 35  
cac ata agt gga tta tca agc aca agt aaa tta agc cta ccg atg ttc 261  
His Ile Ser Gly Leu Ser Ser Thr Ser Lys Leu Ser Leu Pro Met Phe  
36 41 46 51  
acc gtg ctc agg aaa ttc acc att cca ctt acc tta ctt ctg gaa acc 309  
Thr Val Leu Arg Lys Phe Thr Ile Pro Leu Thr Leu Leu Leu Glu Thr  
52 57 62 67  
atc ata ctt ggg aag cag tat tca ctc aac atc atc ctc agt gtc ttt 357  
Ile Ile Leu Gly Lys Gln Tyr Ser Leu Asn Ile Ile Leu Ser Val Phe  
68 73 78 83  
gcc att att ctc ggg gct ttc ata gca gct ggg tct gac ctt gct ttt 405  
Ala Ile Ile Leu Gly Ala Phe Ile Ala Ala Gly Ser Asp Leu Ala Phe  
84 89 94 99  
aac tta gaa ggc tat att ttt gta ttc ctg aat gat atc ttc aca gca 453  
Asn Leu Glu Gly Tyr Ile Phe Val Phe Leu Asn Asp Ile Phe Thr Ala  
100 105 110 115



gca aat gga gtt tat acc aaa cag aaa atg gac cca aag gag cta ggg	501
Ala Asn Gly Val Tyr Thr Lys Gln Lys Met Asp Pro Lys Glu Leu Gly	
116 121 126 131	
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Lys Tyr Gly Val Leu Phe Tyr Asn Ala Cys Phe Met Ile Ile Pro Thr	
132 137 142 147	
ctt att att agt gtc tcc act gga gac ctg caa cag gct act gaa ttc	597
Leu Ile Ile Ser Val Ser Thr Gly Asp Leu Gln Gln Ala Thr Glu Phe	
148 153 158 163	
aac caa tgg aag aat gtt gtg ttt atc cta cag ttt ctt ctt tcc tgt	645
Asn Gln Trp Lys Asn Val Val Phe Ile Leu Gln Phe Leu Leu Ser Cys	
164 169 174 179	
ttt ttg ggg ttt ctg ctg atg tac tcc acg gtt ctg tgc agc tat tac	693
Phe Leu Gly Phe Leu Leu Met Tyr Ser Thr Val Leu Cys Ser Tyr Tyr	
180 185 190 195	
aat tca gcc ctg acg aca gca gtg gtt gga gcc atc aag cat ggc agg	741
Asn Ser Ala Leu Thr Thr Ala Val Val Gly Ala Ile Lys His Gly Arg	
196 201 206 211	
ggg ctt gag ata ttc ctt ttt aac act gag cag cca gtt aaa acc taa	789
Gly Leu Glu Ile Phe Leu Phe Asn Thr Glu Gln Pro Val Lys Thr *	
212 217 222 227	
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tggagactga cttgtgactg cgggctgggg gggcattccc agtaggaatg tgaagccaga	909
ggtttcggat tctgtacatc cccccctgg gcaagtgaga gcatctgcaa aatgcaaaga	969
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cagctgctct tctagggacc tatggggcct tctgtggcatc tctgtgctgt gtgctgggga	1149
ggaggttgat gtaatggtga ctcttttctg atcagcacct tggccgtgat tccaagggtc	1209
ccagccaaag caaagggccca gttgtttcag tttaaacaga catgtcttta gtctaataaa	1269
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<222> (2307)..(3542)

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2407

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Met Ala Trp Glu Pro Ser Leu Gly Ala	
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Phe Tyr Gly Pro Ala Ser Phe Ser Thr Phe Val Asn Cys Met Tyr Phe	
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ctg agc ata ttt att cag ttg aaa aga cac cct gag cgc aaa tat gag	2429
Leu Ser Ile Phe Ile Gln Leu Lys Arg His Pro Glu Arg Lys Tyr Glu	
26 31 36 41	
ctt aag gag ccc acg gag gag caa cag aga ttg gca gcc aat gaa aat	2477
Leu Lys Glu Pro Thr Glu Glu Gln Gln Arg Leu Ala Ala Asn Glu Asn	
42 47 52 57	
ggc gaa ata aat cat cag gat tca atg tct ttg tct ctg att tct aca	2525
Gly Glu Ile Asn His Gln Asp Ser Met Ser Leu Ser Leu Ile Ser Thr	
58 63 68 73	
tca gcc ttg gaa aat gag cac act ttt cat tct cag ctc ttg ggg gcc	2573
Ser Ala Leu Glu Asn Glu His Thr Phe His Ser Gln Leu Leu Gly Ala	
74 79 84 89	
agc ctt act ttg ctc tta tat gtt gca ctg tgg atg ttt ggg gct ttg	2621
Ser Leu Thr Leu Leu Leu Tyr Val Ala Leu Trp Met Phe Gly Ala Leu	
90 95 100 105	
gct gtt tct ttg tat tac cct ttg gac ttg gtt ttt agc ttc gtt ttt	2669
Ala Val Ser Leu Tyr Tyr Pro Leu Asp Leu Val Phe Ser Phe Val Phe	
106 111 116 121	
gga gcc aca agt tta agc ttc agt gcg ttc ttc gtg gtc cac cat tgt	2717
Gly Ala Thr Ser Leu Ser Phe Ser Ala Phe Phe Val Val His His Cys	

122	127	132	137	
gtt aat agg gag gat	gtt aga ctt gcg tgg	atc atg act tgc tgc cca	2765	
Val Asn Arg Glu Asp	Val Arg Leu Ala Trp	Ile Met Thr Cys Cys Pro		
138	143	148	153	
gga cgg agc tcg tat	tca gtg caa gtc aac gtc	cag ccc ccc aac tct	2813	
Gly Arg Ser Ser Tyr	Ser Val Gln Val Asn Val	Gln Pro Pro Asn Ser		
154	159	164	169	
aat ggg acg aat gga	gag gca ccc aaa tgc	ccc aat agc agt gcg gag	2861	
Asn Gly Thr Asn Gly	Glu Ala Pro Lys Cys	Pro Asn Ser Ser Ala Glu		
170	175	180	185	
tct tca tgc aca aac	aaa agt gct tca agc	ttc aaa aat tcc tcc cag	2909	
Ser Ser Cys Thr Asn	Lys Ser Ala Ser Ser	Phe Lys Asn Ser Ser Gln		
186	191	196	201	
ggc tgc aaa tta aca	aac ttg cag gcg gct	gca gct cag tgc cat gcc	2957	
Gly Cys Lys Leu Thr	Asn Leu Gln Ala Ala	Ala Ala Gln Cys His Ala		
202	207	212	217	
aat tct tta cct ttg	aac tcc acc cct cag	ctt gat aat agt ctg aca	3005	
Asn Ser Leu Pro Leu	Asn Ser Thr Pro Gln	Leu Asp Asn Ser Leu Thr		
218	223	228	233	
gaa cat tca atg gac	aat gat att aaa atg	cac gtg gcg cct tta gaa	3053	
Glu His Ser Met Asp	Asn Asp Ile Lys Met	His Val Ala Pro Leu Glu		
234	239	244	249	
gtt cag ttt cga aca	aat gtg cac tca agc	cgc cac cat aaa aac aga	3101	
Val Gln Phe Arg Thr	Asn Val His Ser Ser	Arg His His Lys Asn Arg		
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agt aaa gga cac cgg	gca agc cga ctc aca	gtc ctg aga gaa tat gcc	3149	
Ser Lys Gly His Arg	Ala Ser Arg Leu Thr	Val Leu Arg Glu Tyr Ala		
266	271	276	281	
tac gat gtc cca acg	agc gtg gaa gga agc	gtg cag aac ggc tta cct	3197	
Tyr Asp Val Pro Thr	Ser Val Glu Gly Ser	Val Gln Asn Gly Leu Pro		
282	287	292	297	
aaa agc cgg ctg ggc	aat aac gaa gga cac	tcg agg agc cga aga gct	3245	
Lys Ser Arg Leu Gly	Asn Asn Glu Gly His	Ser Arg Ser Arg Arg Ala		
298	303	308	313	
tat tta gcc tac aga	gag aga cag tac aac	cca ccc cag caa gac agc	3293	
Tyr Leu Ala Tyr Arg	Glu Arg Gln Tyr Asn	Pro Pro Gln Gln Asp Ser		
314	319	324	329	
agc gat gct tgt agc	aca ctt ccc aaa agt	agc aga aat ttt gaa aag	3341	
Ser Asp Ala Cys Ser	Thr Leu Pro Lys Ser	Ser Arg Asn Phe Glu Lys		
330	335	340	345	
cca gtt tca acc act	agt aaa aaa gat gcg	tta agg aag cca gct gtg	3389	
Pro Val Ser Thr Thr	Ser Lys Lys Asp Ala	Leu Arg Lys Pro Ala Val		
346	351	356	361	

gtt gaa ctt gaa aat cag caa aaa tct tat ggc ctc aac ttg gcc att 3437  
Val Glu Leu Glu Asn Gln Gln Lys Ser Tyr Gly Leu Asn Leu Ala Ile  
362 367 372 377

cag aat gga cca att aaa agc aat ggg cag gag gga ccc ttg ctc ggt 3485  
Gln Asn Gly Pro Ile Lys Ser Asn Gly Gln Glu Gly Pro Leu Leu Gly  
378 383 388 393

acc gat agc act ggc aat gtt agg act gga tta tgg aaa cac gaa act 3533  
Thr Asp Ser Thr Gly Asn Val Arg Thr Gly Leu Trp Lys His Glu Thr  
394 399 404 409

act gtg taa cattgct gggcttccta ggcagaaatt catataaact gtgataactca 3589  
Thr Val \*  
410

cattccttga agctatgagc atttaaaaac tgtttacagc caccataggg attcaaaaaga 3649

atttgggaata aactttgaag ttttggtatt tacttatttt tatccccaaa ttgttgctat 3709

tttttaggat ctgaaacaaa atctttctaa aacattgttt tagttgtcaa agcaccaaca 3769

ggacattttg ggatgtgaaa tgtaatttct tggaatctgt aatttgtact taatatttca 3829

ggcttgtatt taatataata aataggtgtt tgttattgtg tcaaaaaaaaa aaaa 3883

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<211> 1854

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<213> Homo sapiens

<220>

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ataaagagag tgggtgtgcc agccttcctg tategttaac aagcattaaa gaggagccca 180

aagaggccaa gcatcctgat tctcaatca atg gag gag agc aag ctg aaa aat 233  
Met Glu Glu Ser Lys Leu Lys Asn  
1 5

gat gat cga aag act cct gtg aac tgg aag gac tct cgg gga aca aga 281  
Asp Asp Arg Lys Thr Pro Val Asn Trp Lys Asp Ser Arg Gly Thr Arg  
9 14 19 24

gtg gct gtc tcc tca ccc atg agt cag cat cag tca tac ata cag tac 329  
Val Ala Val Ser Ser Pro Met Ser Gln His Gln Ser Tyr Ile Gln Tyr  
25 30 35 40

ttg cat gct tat cct tac cca cag atg tac gac ccc agc cat cct gca	377
Leu His Ala Tyr Pro Tyr Pro Gln Met Tyr Asp Pro Ser His Pro Ala	
41 46 51 56	
tac cgg gct gtt tct ccc gtc cta atg cac agt tat cct ggg gca tat	425
Tyr Arg Ala Val Ser Pro Val Leu Met His Ser Tyr Pro Gly Ala Tyr	
57 62 67 72	
ctc tct cca gga ttt cat tat cct gtt tat ggg aag atg tca ggg aga	473
Leu Ser Pro Gly Phe His Tyr Pro Val Tyr Gly Lys Met Ser Gly Arg	
73 78 83 88	
gaa gag aca gag aaa gtc aat acc agc cct agc gtc aac acg aaa aca	521
Glu Glu Thr Glu Lys Val Asn Thr Ser Pro Ser Val Asn Thr Lys Thr	
89 94 99 104	
acc act gaa tct aaa gca ctg gat ttg ctc cag cag cat gct aac caa	569
Thr Thr Glu Ser Lys Ala Leu Asp Leu Leu Gln Gln His Ala Asn Gln	
105 110 115 120	
tac cgc agc aag tct cct gct cct gtg gaa aag gct aca gct gag cgg	617
Tyr Arg Ser Lys Ser Pro Ala Pro Val Glu Lys Ala Thr Ala Glu Arg	
121 126 131 136	
gaa cgg gag gca gaa agg gaa agg gat cgc cac tcc ccc ttc ggc cag	665
Glu Arg Glu Ala Glu Arg Glu Arg Asp Arg His Ser Pro Phe Gly Gln	
137 142 147 152	
cgg cac ctg cac acg cac cac cac acc cac gtt ggc atg ggt tac ccg	713
Arg His Leu His Thr His His His Thr His Val Gly Met Gly Tyr Pro	
153 158 163 168	
cta atc ccg ggt caa tat gac cct ttt caa ggc ttg acc tct gct gcc	761
Leu Ile Pro Gly Gln Tyr Asp Pro Phe Gln Gly Leu Thr Ser Ala Ala	
169 174 179 184	
ctt gtt gcc tct cag cag gtg gct gcc cag gca tct gca tct gga atg	809
Leu Val Ala Ser Gln Gln Val Ala Ala Gln Ala Ser Ala Ser Gly Met	
185 190 195 200	
ttt cct gga caa aga aga taa ag tcgcaaatgg agacatttat tttcataatg	862
Phe Pro Gly Gln Arg *	
201 206	
ctaaagagaa taacaagatt ggacatgtac attgtcatgt gactggatca catggggaag	922
cgcttttatac agacatcagt tccatggtgt taatttgaaa tgccttaatg gcaggcaaaa	982
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attaaacttc tgttttatat atatatacgt atacatatct gtatatatac atatatatat	1102
atataaatat aaatatattc tttacttttt gtatcagtaa ccaggctcgc acacacaggg	1162
tctgctgcc cgtcgcaaac cactcagtaa aggaaattaa aaatgtattt gtcattgttaa	1222

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Leu Thr Pro Ile Leu Val Ala Ile Leu Cys Ile Leu Val Val Trp Ile
4 9 14 19

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ttt aaa aat gcc gac aga agc atg gag aaa aag aag ggg gag cct aga 152
Phe Lys Asn Ala Asp Arg Ser Met Glu Lys Lys Lys Gly Glu Pro Arg
20 25 30 35

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acc agg gcc gaa gct cgc ccc tgg gtg gat gaa gac tta aaa gac agc 200
Thr Arg Ala Glu Ala Arg Pro Trp Val Asp Glu Asp Leu Lys Asp Ser
36 41 46 51

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agt gac ctg cac caa gca gaa gaa gat gct gat gaa tgg caa gaa tca 248
Ser Asp Leu His Gln Ala Glu Glu Asp Ala Asp Glu Trp Gln Glu Ser
52 57 62 67

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gaa gaa aat gtt gaa cac atc ccc ttc tct cat aac cac tat cct gag 296
Glu Glu Asn Val Glu His Ile Pro Phe Ser His Asn His Tyr Pro Glu

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68	73	78	83	
aag gaa atg gtt aag agg tct cag gaa ttt tat gaa ctt ctc aat aag				344
Lys Glu Met Val Lys Arg Ser Gln Glu Phe Tyr Glu Leu Leu Asn Lys				
84	89	94	99	
aga cgg tca gtc agg ttc ata agt aat gag caa gtc cca atg gaa gtc				392
Arg Arg Ser Val Arg Phe Ile Ser Asn Glu Gln Val Pro Met Glu Val				
100	105	110	115	
att gat aat gtc atc aga acg gca gga aca gcc ccg agt ggg gct cac				440
Ile Asp Asn Val Ile Arg Thr Ala Gly Thr Ala Pro Ser Gly Ala His				
116	121	126	131	
aca gag ccc tgg acc ttc gtg gtt gtg aag gac cca gac gtg aag cac				488
Thr Glu Pro Trp Thr Phe Val Val Val Lys Asp Pro Asp Val Lys His				
132	137	142	147	
aag att cga aag atc att gag gag gaa gag gag atc aac tac atg aaa				536
Lys Ile Arg Lys Ile Ile Glu Glu Glu Glu Glu Ile Asn Tyr Met Lys				
148	153	158	163	
agg atg gga cat cgc tgg gtc aca gac ctc aag aaa ctg agg acc aac				584
Arg Met Gly His Arg Trp Val Thr Asp Leu Lys Lys Leu Arg Thr Asn				
164	169	174	179	
tgg att aaa gag tac ttg gat act gcc cct att ttg att ctc att ttc				632
Trp Ile Lys Glu Tyr Leu Asp Thr Ala Pro Ile Leu Ile Leu Ile Phe				
180	185	190	195	
aaa caa gta cat ggt ttc gcc gca aat ggc aag aaa aaa gtc cac tac				680
Lys Gln Val His Gly Phe Ala Ala Asn Gly Lys Lys Lys Val His Tyr				
196	201	206	211	
tac aat gag atc agt gtt tcc atc gct tgt ggc atc ctg cta gct gcc				728
Tyr Asn Glu Ile Ser Val Ser Ile Ala Cys Gly Ile Leu Leu Ala Ala				
212	217	222	227	
ctg cag aat gca ggt ctg gtg act gtc act acc act cct ctc aac tgt				776
Leu Gln Asn Ala Gly Leu Val Thr Val Thr Thr Thr Pro Leu Asn Cys				
228	233	238	243	
ggc cct cga ctg agg gtg ctc ctg ggc cgc ccc gca cat gaa aag ctg				824
Gly Pro Arg Leu Arg Val Leu Leu Gly Arg Pro Ala His Glu Lys Leu				
244	249	254	259	
ctg atg ctg ctc ccc gtg ggg tac ccc agc aag gag gcc acg gtg cct				872
Leu Met Leu Leu Pro Val Gly Tyr Pro Ser Lys Glu Ala Thr Val Pro				
260	265	270	275	
gac ctc aag cgc aaa cct ctg gac cag atc atg gtg aca gtg tag gca				920
Asp Leu Lys Arg Lys Pro Leu Asp Gln Ile Met Val Thr Val *				
276	281	286		
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 <222> (140)..(1189)

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cttggtggta ccatacagaa atg tct tcc tta agt gga aaa gtc caa acc gtt      172
                Met Ser Ser Leu Ser Gly Lys Val Gln Thr Val
                  1                      5

ttg ggc ctt gta gag cca agc aaa ctg ggc cgt acc ctg acc cat gaa      220
Leu Gly Leu Val Glu Pro Ser Lys Leu Gly Arg Thr Leu Thr His Glu
   12                      17                      22                      27

cac ctg gcc atg acc ttt gac tgc tgt tac tgt cca cct ccc ccg tgc      268
His Leu Ala Met Thr Phe Asp Cys Cys Tyr Cys Pro Pro Pro Pro Cys
   28                      33                      38                      43

cag gaa gct att tcc aaa gaa cct atc gtg atg aaa aat tta tat tgg      316
Gln Glu Ala Ile Ser Lys Glu Pro Ile Val Met Lys Asn Leu Tyr Trp
   44                      49                      54                      59

att cag aaa aac gcc tat tcc cat aaa gaa aac ctt caa tta aat cag      364
Ile Gln Lys Asn Ala Tyr Ser His Lys Glu Asn Leu Gln Leu Asn Gln
   60                      65                      70                      75

gag aca gaa gcc ata aag gaa gaa ctg ttg tat ttt aaa gct aat ggt      412
Glu Thr Glu Ala Ile Lys Glu Glu Leu Leu Tyr Phe Lys Ala Asn Gly
   76                      81                      86                      91

gga ggg gct ttg gtg gaa aac aca acc act ggg att agc cga gac aca      460
Gly Gly Ala Leu Val Glu Asn Thr Thr Thr Gly Ile Ser Arg Asp Thr
   92                      97                      102                      107

cag acg ttg aag agg ctt gca gaa gag act ggc gtc cat atc ata tct      508
Gln Thr Leu Lys Arg Leu Ala Glu Glu Thr Gly Val His Ile Ile Ser
  108                      113                      118                      123

gga gcc ggg ttt tat gtg gat gca act cac tcc tca gag acc agg gcc      556
Gly Ala Gly Phe Tyr Val Asp Ala Thr His Ser Ser Glu Thr Arg Ala
  124                      129                      134                      139

atg tca gtg gag cag ctt acc gat gtc ctt atg aat gaa att ctc cat      604
Met Ser Val Glu Gln Leu Thr Asp Val Leu Met Asn Glu Ile Leu His
  140                      145                      150                      155
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gga gct gat gga acc agt atc aag tgt ggc att att gga gaa att ggt	652
Gly Ala Asp Gly Thr Ser Ile Lys Cys Gly Ile Ile Gly Glu Ile Gly	
156 161 166 171	
tgc tcc tgg cct ttg act gag agt gaa aga aag gtt ctc cag gcc aca	700
Cys Ser Trp Pro Leu Thr Glu Ser Glu Arg Lys Val Leu Gln Ala Thr	
172 177 182 187	
gct cat gcc cag gct cag ctt ggt tgt cct gtt att atc cat cct gga	748
Ala His Ala Gln Ala Gln Leu Gly Cys Pro Val Ile Ile His Pro Gly	
188 193 198 203	
cgg agc tcc agg gca cca ttt cag att atc cga ata ttg caa gaa gca	796
Arg Ser Ser Arg Ala Pro Phe Gln Ile Ile Arg Ile Leu Gln Glu Ala	
204 209 214 219	
ggc gca gac atc tcc aaa aca gtc atg tca cac ctg gat agg act att	844
Gly Ala Asp Ile Ser Lys Thr Val Met Ser His Leu Asp Arg Thr Ile	
220 225 230 235	
ctt gat aag aaa gag ctc ttg gag ttt gct caa ctt ggc tgc tac ttg	892
Leu Asp Lys Lys Glu Leu Leu Glu Phe Ala Gln Leu Gly Cys Tyr Leu	
236 241 246 251	
gaa tat gat ctc ttt ggt act gaa cta ctt cat tac caa ctc ggc cca	940
Glu Tyr Asp Leu Phe Gly Thr Glu Leu Leu His Tyr Gln Leu Gly Pro	
252 257 262 267	
gat att gac atg cct gat gat aac aaa aga att aga agg gtg cgt ctc	988
Asp Ile Asp Met Pro Asp Asp Asn Lys Arg Ile Arg Arg Val Arg Leu	
268 273 278 283	
ctg gtg gaa gag ggc tgt gaa gat cga att ctg gta gca cat gac ata	1036
Leu Val Glu Glu Gly Cys Glu Asp Arg Ile Leu Val Ala His Asp Ile	
284 289 294 299	
cat acg aaa acc cgg ctg atg aaa tat gga ggt cac ggc tat tct cat	1084
His Thr Lys Thr Arg Leu Met Lys Tyr Gly Gly His Gly Tyr Ser His	
300 305 310 315	
ata ctc acc aat gtt gtt cct aaa atg ttg ctg aga ggc ata act gag	1132
Ile Leu Thr Asn Val Val Pro Lys Met Leu Leu Arg Gly Ile Thr Glu	
316 321 326 331	
aat gtg ctt gat aag att cta ata gag aac cct aag caa tgg cta act	1180
Asn Val Leu Asp Lys Ile Leu Ile Glu Asn Pro Lys Gln Trp Leu Thr	
332 337 342 347	
ttc aaa tag gatgggt gcttatgaat tcacaccttg agtataaaac ttgcagagaa	1236
Phe Lys *	
348	
cattcagcga ttccagtc actgtgagat attaatacagt tacctaggac taatgacaga	1296
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<222> (196)..(1464)

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acattacatg aagaccatgg ataaattata tttttttctc tttccgctc tactaaccta 180  
gcaaatctct agaag atg acg gtg ttc ttt aaa acg ctt cga aat cac tgg 231  
Met Thr Val Phe Phe Lys Thr Leu Arg Asn His Trp  
1 5 10  
aag aaa act aca gct ggg ctc tgc ctg ctg acc tgg gga ggc cat tgg 279  
Lys Lys Thr Thr Ala Gly Leu Cys Leu Leu Thr Trp Gly Gly His Trp  
13 18 23 28  
ctc tat gga aaa cac tgt gat aac ctc cta agg aga gca gcc tgt caa 327  
Leu Tyr Gly Lys His Cys Asp Asn Leu Leu Arg Arg Ala Ala Cys Gln

29	34	39	44	
gaa gct cag gtg ttt ggc aat caa ctc att cct ccc aat gca caa gtg				375
Glu Ala Gln Val Phe Gly Asn Gln Leu Ile Pro Pro Asn Ala Gln Val				
45	50	55	60	
aag aag gcc act gtt ttt ctc aat cct gca gct tgc aaa gga aaa gcc				423
Lys Lys Ala Thr Val Phe Leu Asn Pro Ala Ala Cys Lys Gly Lys Ala				
61	66	71	76	
agg act cta ttt gaa aaa aat gct gcc ccg att tta cat tta tct ggc				471
Arg Thr Leu Phe Glu Lys Asn Ala Ala Pro Ile Leu His Leu Ser Gly				
77	82	87	92	
atg gat gtg act att gtt aag aca gat tat gag gga caa gcc aag aaa				519
Met Asp Val Thr Ile Val Lys Thr Asp Tyr Glu Gly Gln Ala Lys Lys				
93	98	103	108	
ctc ctg gaa ctg atg gaa aac acg gat gtg atc att gtt gca gga gga				567
Leu Leu Glu Leu Met Glu Asn Thr Asp Val Ile Ile Val Ala Gly Gly				
109	114	119	124	
gat ggg aca ctg cag gag gtt gtt act ggt gtt ctt cga cga aca gat				615
Asp Gly Thr Leu Gln Glu Val Val Thr Gly Val Leu Arg Arg Thr Asp				
125	130	135	140	
gag gct acc ttc agt aag att ccc att gga ttt atc cca ctg gga gag				663
Glu Ala Thr Phe Ser Lys Ile Pro Ile Gly Phe Ile Pro Leu Gly Glu				
141	146	151	156	
acc agt agt ttg agt cat acc ctc ttt gcc gaa agt gga aac aaa gtc				711
Thr Ser Ser Leu Ser His Thr Leu Phe Ala Glu Ser Gly Asn Lys Val				
157	162	167	172	
caa cat att act gat gcc aca ctt gcc att gtg aaa gga gag aca gtt				759
Gln His Ile Thr Asp Ala Thr Leu Ala Ile Val Lys Gly Glu Thr Val				
173	178	183	188	
cca ctt gat gtc ttg cag atc aag ggt gaa aag gaa cag cct gta ttt				807
Pro Leu Asp Val Leu Gln Ile Lys Gly Glu Lys Glu Gln Pro Val Phe				
189	194	199	204	
gca atg acc ggg ctt cga tgg gga tct ttc aga gat gct ggc gtc aaa				855
Ala Met Thr Gly Leu Arg Trp Gly Ser Phe Arg Asp Ala Gly Val Lys				
205	210	215	220	
gtt agc aag tac tgg tat ctt gag cct cta aaa atc aaa gca gcc cac				903
Val Ser Lys Tyr Trp Tyr Leu Glu Pro Leu Lys Ile Lys Ala Ala His				
221	226	231	236	
ttt ttc agc act ctt aag gag tgg cct cag act cat caa gcc tct atc				951
Phe Phe Ser Thr Leu Lys Glu Trp Pro Gln Thr His Gln Ala Ser Ile				
237	242	247	252	
tca tac acg gga cct aca gag aga cct ccc aat gaa cca gag gag acc				999
Ser Tyr Thr Gly Pro Thr Glu Arg Pro Pro Asn Glu Pro Glu Glu Thr				
253	258	263	268	

cct gta caa agg cct tct ttg tac agg aga ata tta cga agg ctt gcg	1047
Pro Val Gln Arg Pro Ser Leu Tyr Arg Arg Ile Leu Arg Arg Leu Ala	
269 274 279 284	
tcc tac tgg gca caa cca cag gat gcc ctt tcc caa gag gtg agc ccg	1095
Ser Tyr Trp Ala Gln Pro Gln Asp Ala Leu Ser Gln Glu Val Ser Pro	
285 290 295 300	
gag gtc tgg aaa gat gtg cag ctg tcc acc att gaa ctg tcc atc aca	1143
Glu Val Trp Lys Asp Val Gln Leu Ser Thr Ile Glu Leu Ser Ile Thr	
301 306 311 316	
aca cgg aat aat cag ctt gac ccg aca agc aaa gaa gat ttt ctg aat	1191
Thr Arg Asn Asn Gln Leu Asp Pro Thr Ser Lys Glu Asp Phe Leu Asn	
317 322 327 332	
atc tgc att gaa cct gac acc atc agc aaa gga gac ttt ata act ata	1239
Ile Cys Ile Glu Pro Asp Thr Ile Ser Lys Gly Asp Phe Ile Thr Ile	
333 338 343 348	
gga agt cga aag gtg aga aac ccc aag ctg cac gtg gag ggc acg gag	1287
Gly Ser Arg Lys Val Arg Asn Pro Lys Leu His Val Glu Gly Thr Glu	
349 354 359 364	
tgt ctc caa gcc agc cag tgc act ttg ctt atc ccg gag gga gca ggg	1335
Cys Leu Gln Ala Ser Gln Cys Thr Leu Leu Ile Pro Glu Gly Ala Gly	
365 370 375 380	
ggc tct ttt agc att gac agt gag gag tat gaa gcg atg cct gtg gag	1383
Gly Ser Phe Ser Ile Asp Ser Glu Glu Tyr Glu Ala Met Pro Val Glu	
381 386 391 396	
gtg aaa ctg ctc ccc agg aag ctg cag ttc ttc tgt gat cct agg aag	1431
Val Lys Leu Leu Pro Arg Lys Leu Gln Phe Phe Cys Asp Pro Arg Lys	
397 402 407 412	
aga gaa cag atg ctc aca agc ccc acc cag tga gcagcaga agacaagcac	1482
Arg Glu Gln Met Leu Thr Ser Pro Thr Gln *	
413 418 423	
tctgagacca cacttttaggc caccggtggg accaaaaggg aacaggtgcc tcagccatcc	1542
caacagtgtc gtcagagggg ccccagggca ttttcatggc aagtaccctt ctgccccac	1602
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catgttttat tttggtgtga cggttggccc tcctaaacac ggactttcct caggctggtt	1722
caagacggaa aaggactttc ttctgttttc ttocaaagtg caaccacagt ggagagccca	1782
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gctattttgt gagctccggc tcctgttttag cttttatttc agttctaacc tcagtccaga	1962

aacatatgtg aggttgtttc cctcttcagc cacggctaca ataccggaaa atgctagttt 2022  
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 caggaatatg catttttaaa aagtcactctg cccttcccag gtgattctgt aagttgtccc 2202  
 tcaactgtac ttggagaaat cgtgttttaa agcagtagtc cacaaagtat tctgctcatg 2262  
 tgcccccaaa agtattttga aaaatcatgt ataccctcac ccatctaagt tgatatctaa 2322  
 aattttatct aagttggtat ctaaaatttt tcatgggaag ttaaatagtt gacaaagtat 2382  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (43)..(405)

<400> 797  
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 Met His Ala Tyr  
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 Val Ser Leu Asp Pro Leu Glu Gln Pro Pro Thr Thr Thr Lys Phe Ala  
 5 10 15 20

gcc ggt cga ccg gag ctt tcg cag ctg gag aag gct cat cca cct gca 150  
 Ala Gly Arg Pro Glu Leu Ser Gln Leu Glu Lys Ala His Pro Pro Ala  
 21 26 31 36

gac atg ggg cgc aga aag tca aaa cga aag ccg cct ccc aag aag aag 198  
 Asp Met Gly Arg Arg Lys Ser Lys Arg Lys Pro Pro Pro Lys Lys Lys  
 37 42 47 52

atg aca ggc acc ctc gag acc cag ttc acc tgc ccc ttc tgc aac cac 246  
 Met Thr Gly Thr Leu Glu Thr Gln Phe Thr Cys Pro Phe Cys Asn His  
 53 58 63 68

gag aaa tcc tgt gat gtg aaa atg gac cgt gcc cgc aac acc gga gtc 294  
 Glu Lys Ser Cys Asp Val Lys Met Asp Arg Ala Arg Asn Thr Gly Val  
 69 74 79 84

atc tct tgt acc gtg tgc cta gag gaa ttc cag acg ccc ata acg tat 342  
 Ile Ser Cys Thr Val Cys Leu Glu Glu Phe Gln Thr Pro Ile Thr Tyr

85	90	95	100	
ctg tca gaa ccc gtg gat gtg tac agt gat tgg ata gac gcc tgc gag				390
Leu Ser Glu Pro Val Asp Val Tyr Ser Asp Trp Ile Asp Ala Cys Glu				
101	106	111	116	
gcg gcc aat cag tag cgacacagag gacccgcccc ctgagcagcc ccgcgtactg				445
Ala Ala Asn Gln *				
117				
tggatccagc tgttcgggttc tgggtccagag acattccagg ggtccagggt gtgggtcctg				505
ggctgtcaca gccgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtagt				565
gggtgtgctg gtgggtgtgg gtgtgagtga gtgtgggtgt gtgtggctgc acgtgtcact				625
gggggtggccg tgagtgtgtg ctcacagga cgcggtgggt tcgggttcct gggcctgagg				685
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gtgcccactt caactggact tcccgccctc cttctccacc ttctagtgc cgtggccggg				925
gattcaaagc cgccgttccc caggctccctg ggctgggccc tgacagggag ccgccccct				985
ccccatggta accaggaagc ccgtttcatg ttcagttgct tttgtagagg aagcaagggc				1045
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aaaaaa				1111

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gagagatggg caaagatgaa gggacgtgcc agatcctcag ctgggggtccc gttta atg	178
	Met
	1
gat tct gac atg gat tat gaa agg cca aac gta gag acc atc aag tgc	226
Asp Ser Asp Met Asp Tyr Glu Arg Pro Asn Val Glu Thr Ile Lys Cys	

2	7	12	17	
gtt gtt gtt ggg gac aac gcc gtg ggt aag acc agg ctc atc tgt gcc				274
Val Val Val Gly Asp Asn Ala Val Gly Lys Thr Arg Leu Ile Cys Ala				
18	23	28	33	
cgc gct tgc aat gcc acc ctc acc cag tac cag ctg ctg gcc acg cat				322
Arg Ala Cys Asn Ala Thr Leu Thr Gln Tyr Gln Leu Leu Ala Thr His				
34	39	44	49	
gtg ccc aca gta tgg gcc atc gac caa tat cgt gtg tgc cag gag gtg				370
Val Pro Thr Val Trp Ala Ile Asp Gln Tyr Arg Val Cys Gln Glu Val				
50	55	60	65	
ctg gaa cgc tcc cga gac gtg gta gat gat gtc agc gtc tct ctg cgc				418
Leu Glu Arg Ser Arg Asp Val Val Asp Asp Val Ser Val Ser Leu Arg				
66	71	76	81	
ctc tgg gac acc ttt gga gac cac cac aaa gac cgt cgc ttt gct tat				466
Leu Trp Asp Thr Phe Gly Asp His His Lys Asp Arg Arg Phe Ala Tyr				
82	87	92	97	
ggg aga tct gat gtg gtg gtt ctg tgc ttc tcc att gcc aac ccc aat				514
Gly Arg Ser Asp Val Val Val Leu Cys Phe Ser Ile Ala Asn Pro Asn				
98	103	108	113	
tcc ctc cac cat gtc aag acc atg tgg tac cca gaa atc aag cac ttc				562
Ser Leu His His Val Lys Thr Met Trp Tyr Pro Glu Ile Lys His Phe				
114	119	124	129	
tgc ccc cga gca cct gtc atc ttg gtg ggc tgc cag ttg gac ctg cgc				610
Cys Pro Arg Ala Pro Val Ile Leu Val Gly Cys Gln Leu Asp Leu Arg				
130	135	140	145	
tac gct gac ctg gag gct gtc aac agg gct agg cga ccc ttg gct agg				658
Tyr Ala Asp Leu Glu Ala Val Asn Arg Ala Arg Arg Pro Leu Ala Arg				
146	151	156	161	
ccc atc aaa cct aat gaa atc ctg ccc cca gag aag ggt cgg gag gtg				706
Pro Ile Lys Pro Asn Glu Ile Leu Pro Pro Glu Lys Gly Arg Glu Val				
162	167	172	177	
gcc aag gag ctg ggc atc ccc tac tat gag acc agc gtg gtg gcc cag				754
Ala Lys Glu Leu Gly Ile Pro Tyr Tyr Glu Thr Ser Val Val Ala Gln				
178	183	188	193	
ttc ggc atc aag gac gtc ttt gac aac gcc atc cga gct gca ctc atc				802
Phe Gly Ile Lys Asp Val Phe Asp Asn Ala Ile Arg Ala Ala Leu Ile				
194	199	204	209	
tcc cgc cgc cac ctg cag ttc tgg aag tcc cac ctc cgc aat gtg cag				850
Ser Arg Arg His Leu Gln Phe Trp Lys Ser His Leu Arg Asn Val Gln				
210	215	220	225	
cgg cct ctg ctg cag gca ccc ttc cta ccc ccc aag cca ccg ccc ccg				898
Arg Pro Leu Leu Gln Ala Pro Phe Leu Pro Pro Lys Pro Pro Pro Pro				
226	231	236	241	



atc atc gtg gtg ccc gac cct ccc tcc agc agc gag gag tgc ccc gcc	946
Ile Ile Val Val Pro Asp Pro Pro Ser Ser Ser Glu Glu Cys Pro Ala	
242 247 252 257	
cac ctc ctg gag gac ccg ctc tgc gcg gac gtc atc ctg gtg ctg cag	994
His Leu Leu Glu Asp Pro Leu Cys Ala Asp Val Ile Leu Val Leu Gln	
258 263 268 273	
gag cgg gtg cgc atc ttt gcc cac aag atc tac ctc tcc acc tcc tcc	1042
Glu Arg Val Arg Ile Phe Ala His Lys Ile Tyr Leu Ser Thr Ser Ser	
274 279 284 289	
tcc aag ttc tat gac ctg ttc ctc atg gac ctg agt gag ggg gag ctg	1090
Ser Lys Phe Tyr Asp Leu Phe Leu Met Asp Leu Ser Glu Gly Glu Leu	
290 295 300 305	
ggg ggc ccc tcg gag cca ggg ggc acc cac cca gag gac cac cag ggc	1138
Gly Gly Pro Ser Glu Pro Gly Gly Thr His Pro Glu Asp His Gln Gly	
306 311 316 321	
cac tct gat caa cac cac cac cat cac cac cac cat ggg cga gac	1186
His Ser Asp Gln His His His His His His His His His Gly Arg Asp	
322 327 332 337	
ttc ctg ctc cga gca gcc agc ttt gac gtg tgc gag agc gtg gat gag	1234
Phe Leu Leu Arg Ala Ala Ser Phe Asp Val Cys Glu Ser Val Asp Glu	
338 343 348 353	
gct ggg ggc tcc ggt cct gct ggc ctc cgt gct tcc acc agc gac ggg	1282
Ala Gly Gly Ser Gly Pro Ala Gly Leu Arg Ala Ser Thr Ser Asp Gly	
354 359 364 369	
atc tta cgg ggc aac gga aca ggg tac cta ccg ggc agg ggt cgt gtg	1330
Ile Leu Arg Gly Asn Gly Thr Gly Tyr Leu Pro Gly Arg Gly Arg Val	
370 375 380 385	
ctg tct tcc tgg agc cga gct ttt gtg agc atc cag gaa gag atg gca	1378
Leu Ser Ser Trp Ser Arg Ala Phe Val Ser Ile Gln Glu Glu Met Ala	
386 391 396 401	
gaa gat cct ctc acc tac aaa tcc cgg ctg atg gtg gtg gtg aag atg	1426
Glu Asp Pro Leu Thr Tyr Lys Ser Arg Leu Met Val Val Val Lys Met	
402 407 412 417	
gac agt tcc atc cag ccg ggg ccc ttc cgg gct gtc ctc aag tac ctg	1474
Asp Ser Ser Ile Gln Pro Gly Pro Phe Arg Ala Val Leu Lys Tyr Leu	
418 423 428 433	
tac acg ggg gag cta gat gag aac gag cgt gac ctc atg cac att gcc	1522
Tyr Thr Gly Glu Leu Asp Glu Asn Glu Arg Asp Leu Met His Ile Ala	
434 439 444 449	
cac att gct gag ctg ctc gag gtc ttt gat ctg cgc atg atg gtg gcc	1570
His Ile Ala Glu Leu Leu Glu Val Phe Asp Leu Arg Met Met Val Ala	
450 455 460 465	

aac att ctc aac aat gag gcc ttc atg aac cag gag atc acc aag gcc	1618
Asn Ile Leu Asn Asn Glu Ala Phe Met Asn Gln Glu Ile Thr Lys Ala	
466 471 476 481	
ttc cac gtc cgc cgg acc aac cgg gtt aag gag tgc ttg gca aaa ggc	1666
Phe His Val Arg Arg Thr Asn Arg Val Lys Glu Cys Leu Ala Lys Gly	
482 487 492 497	
acc ttc tca gat gtg acc ttc atc ctg gat gat ggc acc atc agc gcc	1714
Thr Phe Ser Asp Val Thr Phe Ile Leu Asp Asp Gly Thr Ile Ser Ala	
498 503 508 513	
cac aag ccc ctg ttg att tcc agc tgt gac tgg atg gct gcc atg ttt	1762
His Lys Pro Leu Leu Ile Ser Ser Cys Asp Trp Met Ala Ala Met Phe	
514 519 524 529	
ggg ggg cca ttt gtg gag agc tcc acc cgg gag gtg gtg ttt ccc tac	1810
Gly Gly Pro Phe Val Glu Ser Ser Thr Arg Glu Val Val Phe Pro Tyr	
530 535 540 545	
aca agc aag agc tgc atg cgg gcc gtg ctg gaa tac ctc tac acc ggc	1858
Thr Ser Lys Ser Cys Met Arg Ala Val Leu Glu Tyr Leu Tyr Thr Gly	
546 551 556 561	
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Met Phe Thr Ser Ser Pro Asp Leu Asp Asp Met Lys Leu Ile Ile Leu	
562 567 572 577	
gcc aac cgc ctc tgc ctg cca cac ctg gtt gcc ctc aca gag cag tac	1954
Ala Asn Arg Leu Cys Leu Pro His Leu Val Ala Leu Thr Glu Gln Tyr	
578 583 588 593	
aca gtg acc ggg ctg atg gaa gcg acc cag atg atg gtg gac atc gat	2002
Thr Val Thr Gly Leu Met Glu Ala Thr Gln Met Met Val Asp Ile Asp	
594 599 604 609	
ggg gac gtc ctt gtg ttc ctg gaa ctg gct cag ttc cac tgt gcg tac	2050
Gly Asp Val Leu Val Phe Leu Glu Leu Ala Gln Phe His Cys Ala Tyr	
610 615 620 625	
cag ctg gcc gac tgg tgt ctc cac cac atc tgc acc aac tac aac aac	2098
Gln Leu Ala Asp Trp Cys Leu His His Ile Cys Thr Asn Tyr Asn Asn	
626 631 636 641	
gtg tgc cgc aag ttc ccc cga gac atg aag gcc atg tcc cca gaa aac	2146
Val Cys Arg Lys Phe Pro Arg Asp Met Lys Ala Met Ser Pro Glu Asn	
642 647 652 657	
cag gag tat ttc gag aag cat cgg tgg cca cct gtg tgg tac ctg aag	2194
Gln Glu Tyr Phe Glu Lys His Arg Trp Pro Pro Val Trp Tyr Leu Lys	
658 663 668 673	
gag gaa gat cat tac cag cgg gca cgg aag gag cgt gag aag gag gac	2242
Glu Glu Asp His Tyr Gln Arg Ala Arg Lys Glu Arg Glu Lys Glu Asp	
674 679 684 689	
tac ctc cac ctc aag cgg cag ccc aaa cgg cgt tgg ctc ttc tgg aac	2290

Tyr	Leu	His	Leu	Lys	Arg	Gln	Pro	Lys	Arg	Arg	Trp	Leu	Phe	Trp	Asn	
690					695					700					705	
agt	cca	tcc	tcc	ccg	tct	tcc	tcg	gca	gcc	tcc	tcc	tca	tcc	cca	tct	2338
Ser	Pro	Ser	Ser	Pro	Ser	Ser	Ser	Ala	Ala	Ser	Ser	Ser	Ser	Pro	Ser	
706					711					716					721	
tcc	tcc	tcg	gct	gtg	gtc	tga	ga	tgctgccacc	ctcttctgac	cctgctgctg						2391
Ser	Ser	Ser	Ala	Val	Val	*										
722					727											
ttgtcccat	ccgccttcac	ccctctgctc	ttccgcatca	ccccatccac	cttacagggga											2451
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aggacacagc	cttattactg	ctgggggtgg	ataaggggaa	ggagaagagg	gagaatggag											3771

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Ser Leu Asn Glu Pro Glu Asp Lys Asp Val Thr Ile Gly Phe Ser Leu	
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Arg Arg Lys Glu Gln Leu Trp Glu Lys Leu Ala Lys Gln Gly Glu Leu	
146 151 156 161	
ccc cgg gag gtg cgc agg gcc cag gcc cgg ctc ctc aac cct tct gca	583
Pro Arg Glu Val Arg Arg Ala Gln Ala Arg Leu Leu Asn Pro Ser Ala	
162 167 172 177	
aca agg gcc aag ccc ggg ccc cag gac acc gta gag cgg ccc ttc tac	631
Thr Arg Ala Lys Pro Gly Pro Gln Asp Thr Val Glu Arg Pro Phe Tyr	
178 183 188 193	
gac ctc tgg gcc tca gac aac ccc ctg gac agg ccg ttg gtt ggc cag	679
Asp Leu Trp Ala Ser Asp Asn Pro Leu Asp Arg Pro Leu Val Gly Gln	
194 199 204 209	
gat gag ttt ttc ctg gag cag acc aag aag aaa gga gtg aag cgg cca	727
Asp Glu Phe Phe Leu Glu Gln Thr Lys Lys Lys Gly Val Lys Arg Pro	
210 215 220 225	
gca cgc ctg cac acc aag ccg tcc cag gca ccc gcc gtg gag gtg gcg	775
Ala Arg Leu His Thr Lys Pro Ser Gln Ala Pro Ala Val Glu Val Ala	
226 231 236 241	
cct gcc gga gct tcc tac aat cca tcc ttt gaa gac cac cag acc ctg	823
Pro Ala Gly Ala Ser Tyr Asn Pro Ser Phe Glu Asp His Gln Thr Leu	
242 247 252 257	
ctc tca gcg gcc cac gag gtg gag ttg cag cgg cag aag gag gcg gag	871
Leu Ser Ala Ala His Glu Val Glu Leu Gln Arg Gln Lys Glu Ala Glu	
258 263 268 273	
aag ctg gag cgg cag ctg gcc ctg ccc gcc acg gag cag gcc gcc acc	919
Lys Leu Glu Arg Gln Leu Ala Leu Pro Ala Thr Glu Gln Ala Ala Thr	
274 279 284 289	
cag gag tcc aca ttc cag gag ctg tgc gag ggg ctg ctg gag gag tgc	967
Gln Glu Ser Thr Phe Gln Glu Leu Cys Glu Gly Leu Leu Glu Glu Ser	
290 295 300 305	

gat ggt gag ggg gag cca ggc cag ggc gag ggg ccg gag gct ggg gat	1015
Asp Gly Glu Gly Glu Pro Gly Gln Gly Glu Gly Pro Glu Ala Gly Asp	
306 311 316 321	
gcc gag gtc tgt ccc acg ccc gcc cgc ctg gcc acc aca gag aag aag	1063
Ala Glu Val Cys Pro Thr Pro Ala Arg Leu Ala Thr Thr Glu Lys Lys	
322 327 332 337	
acg gag cag cag cgg cgg cgg gag aag gct gtg cac agg ctg cgg gta	1111
Thr Glu Gln Gln Arg Arg Arg Glu Lys Ala Val His Arg Leu Arg Val	
338 343 348 353	
cag cag gcc gcg ttg cgg gcc gcc cgg ctc cgg cac cag gag ctg ttc	1159
Gln Gln Ala Ala Leu Arg Ala Ala Arg Leu Arg His Gln Glu Leu Phe	
354 359 364 369	
cgg ctg cgc ggg atc aag gcc cag gtg gcc ctg agg ctg gcg gag ctg	1207
Arg Leu Arg Gly Ile Lys Ala Gln Val Ala Leu Arg Leu Ala Glu Leu	
370 375 380 385	
gcg cgg cgg cgg agg cgg cgg cag gcg cgg cgg gag gct gag gct gac	1255
Ala Arg Arg Arg Arg Arg Arg Gln Ala Arg Arg Glu Ala Glu Ala Asp	
386 391 396 401	
aag ccc cga agg ctg gga cgg ctc aag tac cag gca cct gac atc gac	1303
Lys Pro Arg Arg Leu Gly Arg Leu Lys Tyr Gln Ala Pro Asp Ile Asp	
402 407 412 417	
gtg cag ctg agc tcg gag ctg aca gac tcg ctc agg acc ctg aag ccc	1351
Val Gln Leu Ser Ser Glu Leu Thr Asp Ser Leu Arg Thr Leu Lys Pro	
418 423 428 433	
gag ggc aac atc ctt cga gac cgg ttc aag agc ttc cag agg agg aat	1399
Glu Gly Asn Ile Leu Arg Asp Arg Phe Lys Ser Phe Gln Arg Arg Asn	
434 439 444 449	
atg atc gag cct cga gag aga gcc aag ttc aaa cgc aag tac aag gtg	1447
Met Ile Glu Pro Arg Glu Arg Ala Lys Phe Lys Arg Lys Tyr Lys Val	
450 455 460 465	
aag ctg gtg gag aag cgg gcg ttc cgt gag atc cag ttg tag ctgccat	1496
Lys Leu Val Glu Lys Arg Ala Phe Arg Glu Ile Gln Leu *	
466 471 476	
cagatgccgg agactcgccc ttcaataaaa aatctcttct agctgaaaaa aaaaaaaaa	1554

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 <211> 1078  
 <212> DNA  
 <213> Homo sapiens  
  
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 <221> CDS  
 <222> (104)..(1036)

<400> 803

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cggggtcgacg atttcgtgcg ggtccgaccg cgcacaatgg gcc atg gag ttc ccg 115  
Met Glu Phe Pro

1

ttc gat gtg gac gcg ctg ttc ccg gag cgg atc acg gtg ctg gac cag 163  
Phe Asp Val Asp Ala Leu Phe Pro Glu Arg Ile Thr Val Leu Asp Gln  
5 10 15 20

cac ctg agg ccc cca gcc cgc cga ccc gga acc aca acg ccg gcc cgt 211  
His Leu Arg Pro Pro Ala Arg Arg Pro Gly Thr Thr Thr Pro Ala Arg  
21 26 31 36

gtt gat cta cag cag caa att atg acc att ata gat gaa ctg ggc aag 259  
Val Asp Leu Gln Gln Gln Ile Met Thr Ile Ile Asp Glu Leu Gly Lys  
37 42 47 52

gct tct gcc aag gcc cag aat ctt tcc gct cct atc act agt gca tca 307  
Ala Ser Ala Lys Ala Gln Asn Leu Ser Ala Pro Ile Thr Ser Ala Ser  
53 58 63 68

agg atg cag agt aac cgc cat gtt gtt tat att ctc aaa gac agt tca 355  
Arg Met Gln Ser Asn Arg His Val Val Tyr Ile Leu Lys Asp Ser Ser  
69 74 79 84

gcc cga ccg gct gga aaa gga gcc att att ggt ttc atc aaa gtt gga 403  
Ala Arg Pro Ala Gly Lys Gly Ala Ile Ile Gly Phe Ile Lys Val Gly  
85 90 95 100

tac aag aag ctc ttt gta ctg gat gat cgt gag gct cat aat gag gta 451  
Tyr Lys Lys Leu Phe Val Leu Asp Asp Arg Glu Ala His Asn Glu Val  
101 106 111 116

gaa cca ctt tgc atc ctg gac ttt tac atc cat gag tct gtg caa cgc 499  
Glu Pro Leu Cys Ile Leu Asp Phe Tyr Ile His Glu Ser Val Gln Arg  
117 122 127 132

cat ggc cat ggg cga gaa ctc ttc cag tat atg ttg cag aag gag cga 547  
His Gly His Gly Arg Glu Leu Phe Gln Tyr Met Leu Gln Lys Glu Arg  
133 138 143 148

gtg gaa ccg cac caa ctg gca att gac cga ccc tca cag aag ctg ctg 595  
Val Glu Pro His Gln Leu Ala Ile Asp Arg Pro Ser Gln Lys Leu Leu  
149 154 159 164

aaa ttc ctg aat aag cac tac aat ctg gag acc aca gtc cca cag gtg 643  
Lys Phe Leu Asn Lys His Tyr Asn Leu Glu Thr Thr Val Pro Gln Val  
165 170 175 180

aac aac ttt gtg atc ttt gaa ggc ttc ttt gcc cat caa cat cct cca 691  
Asn Asn Phe Val Ile Phe Glu Gly Phe Phe Ala His Gln His Pro Pro  
181 186 191 196

gca agg aag ctg cca ccc aag aga gca gag gga gac atc aag cca tac 739



Ala Arg Lys Leu Pro Pro Lys Arg Ala Glu Gly Asp Ile Lys Pro Tyr	
197 202 207 212	
tcc tct agt gac cga gaa ttt ctg aag gta gct gtg gag cct cct tgg	787
Ser Ser Ser Asp Arg Glu Phe Leu Lys Val Ala Val Glu Pro Pro Trp	
213 218 223 228	
ccc cta aac agg gcc cct cgc cgc gcc aca cct cca gcc cac cca ccc	835
Pro Leu Asn Arg Ala Pro Arg Arg Ala Thr Pro Pro Ala His Pro Pro	
229 234 239 244	
ccc cgc tcc agc agc ctg gga aac tca cca gaa cga ggt ccc ctc cgc	883
Pro Arg Ser Ser Ser Leu Gly Asn Ser Pro Glu Arg Gly Pro Leu Arg	
245 250 255 260	
ccc ttt gtg cca gag cag gag ctg ctg cgt tcc ttg cgc ctc tgc ccc	931
Pro Phe Val Pro Glu Gln Glu Leu Leu Arg Ser Leu Arg Leu Cys Pro	
261 266 271 276	
cca cac cct acc gcc cgc ctt ctg ttg gct gct gac cct ggg ggc agc	979
Pro His Pro Thr Ala Arg Leu Leu Leu Ala Ala Asp Pro Gly Gly Ser	
277 282 287 292	
cca gct caa cgt cgt cgc acc agc tcc ctt ccc cgc tct gag gag agt	1027
Pro Ala Gln Arg Arg Arg Thr Ser Ser Leu Pro Arg Ser Glu Glu Ser	
293 298 303 308	
cga tac taa cagctaccct ctccctgccc tgggagacct ggggtgggca gg	1078
Arg Tyr *	
309	

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (71)..(1144)

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tccggagaaa atg gcg gcg gag ccg aac aag acc gaa atc cag act ctt	109
Met Ala Ala Glu Pro Asn Lys Thr Glu Ile Gln Thr Leu	
1 5 10	
ttt aag agg ctt cgc gca gtt cca acc aac aag gcc tgt ttc gac tgc	157
Phe Lys Arg Leu Arg Ala Val Pro Thr Asn Lys Ala Cys Phe Asp Cys	
14 19 24 29	
ggc gcc aag aat ccg agt tgg gcc agc atc acg tac ggt gtt ttc ttg	205
Gly Ala Lys Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val Phe Leu	

30	35	40	45	
tgc att gac tgt tcc ggg gtg cac cgc tcc ctg ggc gtc cat ctg agc				253
Cys Ile Asp Cys Ser Gly Val His Arg Ser Leu Gly Val His Leu Ser				
46	51	56	61	
ttc atc agg tcc aca gag ttg gat tcc aac tgg aac tgg ttc cag ctg				301
Phe Ile Arg Ser Thr Glu Leu Asp Ser Asn Trp Asn Trp Phe Gln Leu				
62	67	72	77	
agg tgt atg cag gtc ggc ggg aat gcc aat gcg acg gct ttt ttt cgc				349
Arg Cys Met Gln Val Gly Gly Asn Ala Asn Ala Thr Ala Phe Phe Arg				
78	83	88	93	
caa cat gga tgc aca gcc aat gat gcc aac acc aaa tat aat agc cga				397
Gln His Gly Cys Thr Ala Asn Asp Ala Asn Thr Lys Tyr Asn Ser Arg				
94	99	104	109	
gct gcc cag atg tac cgg gag aag atc cgg cag ctg ggg agt gcg gcc				445
Ala Ala Gln Met Tyr Arg Glu Lys Ile Arg Gln Leu Gly Ser Ala Ala				
110	115	120	125	
ctg gct agg cat ggc act gat ctt tgg ata gac aac atg agt agt gcc				493
Leu Ala Arg His Gly Thr Asp Leu Trp Ile Asp Asn Met Ser Ser Ala				
126	131	136	141	
gtt cct aat cac tcc cca gag aag aag gac tct gat ttc ttc aca gaa				541
Val Pro Asn His Ser Pro Glu Lys Lys Asp Ser Asp Phe Phe Thr Glu				
142	147	152	157	
cac act caa ccc cct gcc tgg gat gcg cca gcc act gag cct tca ggg				589
His Thr Gln Pro Pro Ala Trp Asp Ala Pro Ala Thr Glu Pro Ser Gly				
158	163	168	173	
acc cag cag cca gcc ccg tct aca gag agc agt ggc ctg gca cag ccg				637
Thr Gln Gln Pro Ala Pro Ser Thr Glu Ser Ser Gly Leu Ala Gln Pro				
174	179	184	189	
gag cat ggc ccc aac aca gac ctg ctt ggc acc tca ccc aaa gcc tca				685
Glu His Gly Pro Asn Thr Asp Leu Leu Gly Thr Ser Pro Lys Ala Ser				
190	195	200	205	
ctg gaa ctg aaa agc tcc atc att ggc aag aag aag cca gca gca gct				733
Leu Glu Leu Lys Ser Ser Ile Ile Gly Lys Lys Lys Pro Ala Ala Ala				
206	211	216	221	
aag aaa ggg ctg ggt gcc aag aaa ggc cta ggg gcc cag aag gtg agc				781
Lys Lys Gly Leu Gly Ala Lys Lys Gly Leu Gly Ala Gln Lys Val Ser				
222	227	232	237	
agc cag agc ttc agt gag att gag cgg cag gct cag gtg gca gag aag				829
Ser Gln Ser Phe Ser Glu Ile Glu Arg Gln Ala Gln Val Ala Glu Lys				
238	243	248	253	
ctc cgt gag cag cag gca gcc gat gcc aag aag cag gcg gag gag tcc				877
Leu Arg Glu Gln Gln Ala Ala Asp Ala Lys Lys Gln Ala Glu Glu Ser				
254	259	264	269	

atg gtc gcc tcc atg cgt ctg gcc tac cag gag ctc cag att gat cgt 925  
Met Val Ala Ser Met Arg Leu Ala Tyr Gln Glu Leu Gln Ile Asp Arg  
270 275 280 285

aaa aaa gag gaa aag aag cta cag aat ctg gaa ggg aag aag cga gag 973  
Lys Lys Glu Glu Lys Lys Leu Gln Asn Leu Glu Gly Lys Lys Arg Glu  
286 291 296 301

cag gca gaa agg ttg ggc atg ggc ttg gta tcc cga agc tct gtc tcc 1021  
Gln Ala Glu Arg Leu Gly Met Gly Leu Val Ser Arg Ser Ser Val Ser  
302 307 312 317

cac tcc gtg ctg tct gag atg cag gtg att gag cag gaa acc cca gtg 1069  
His Ser Val Leu Ser Glu Met Gln Val Ile Glu Gln Glu Thr Pro Val  
318 323 328 333

agt gca aaa tcc tct cgc tcg cag ctg gac ttg ttt gac gat gtt ggt 1117  
Ser Ala Lys Ser Ser Arg Ser Gln Leu Asp Leu Phe Asp Asp Val Gly  
334 339 344 349

act ttc gcc tct gga ccc cca aag taa ggctg ttttctagct gtaaacttgg 1169  
Thr Phe Ala Ser Gly Pro Pro Lys \*  
350 355

ctgctgtgtt cctcatcagg cttctctgag ccactctact gtcttcctag gtacaaggac 1229

aatccctttt ccttagggga aagcc 1254

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<211> 727  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (205)..(504)

<400> 805  
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actagtccag tgtggtggaa ttcaagagggc cgggctacgt cgtgccttgc gcgtgagcag 120

ctgcagcggc agaggcagca tccagcggcg gcgccagcag ttccagtccg ttgctttact 180

ttttgcttca ccgacatagt catt atg ccg aag aga aag tct cca gag aat 231  
Met Pro Lys Arg Lys Ser Pro Glu Asn  
1 5

aca gag ggc aaa gat gga tcc aaa gta act aaa cag gag ccc aca aga 279  
Thr Glu Gly Lys Asp Gly Ser Lys Val Thr Lys Gln Glu Pro Thr Arg  
10 15 20 25

cgg tct gcc aga ttg tca gcg aaa cct gct cca cca aaa cct gaa ccc 327

Arg	Ser	Ala	Arg	Leu	Ser	Ala	Lys	Pro	Ala	Pro	Pro	Lys	Pro	Glu	Pro		
26					31					36					41		
aaa	cca	aga	aaa	aca	tct	gct	aag	aaa	gaa	cct	gga	gca	aag	att	agc	375	
Lys	Pro	Arg	Lys	Thr	Ser	Ala	Lys	Lys	Glu	Pro	Gly	Ala	Lys	Ile	Ser		
42					47					52					57		
aga	ggt	gct	aaa	ggg	aag	aag	gag	gaa	aag	cag	gaa	gct	gga	aag	gaa	423	
Arg	Gly	Ala	Lys	Gly	Lys	Lys	Glu	Glu	Lys	Gln	Glu	Ala	Gly	Lys	Glu		
58					63					68					73		
ggt	act	gca	cca	tct	gaa	aat	ggt	gaa	act	aaa	gct	gaa	gag	gca	cag	471	
Gly	Thr	Ala	Pro	Ser	Glu	Asn	Gly	Glu	Thr	Lys	Ala	Glu	Glu	Ala	Gln		
74					79					84					89		
aaa	act	gaa	tct	gta	gat	aac	gag	gga	gaa	tga	attgtcat	gaaaaattgg	522				
Lys	Thr	Glu	Ser	Val	Asp	Asn	Glu	Gly	Glu	*							
90					95					100							
ggttgatttt	atgtatctct	tgggacaact	tttaaaagct	attttttacca	agtattttgt	582											
aaatgcta	at	tttaggac	tctactagtt	ggcatagcaa	aatatataag	gatggacatt	642										
ttatcgtctc	atagtc	atgc	tttttggaaa	tttacatcat	cctcaagtaa	aataaatatc	702										
agttaa	atat	tgaaaa	aaaaa				727										

<210> 806  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (205)..(462)

<400>	806																
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actagtccag	tgtggtggaa	ttcaagaggc	cgggctacgt	cgtgccctgc	gcgtgagcag	120											
ctgcagcggc	agaggcagca	tccagcggcg	gcgccagcag	ttccagtccg	ttgctttact	180											
ttttgcttca	ccgacatagt	catt	atg	cag	aag	aga	aag	tct	cca	gag	aat	231					
			Met	Pro	Lys	Arg	Lys	Ser	Pro	Glu	Asn						
			1				5										
aca	gag	ggc	aaa	gat	gga	tcc	aaa	gta	act	aaa	cag	gag	ccc	aca	aga	279	
Thr	Glu	Gly	Lys	Asp	Gly	Ser	Lys	Val	Thr	Lys	Gln	Glu	Pro	Thr	Arg		
10					15					20					25		
cgg	tct	gcc	aga	ttg	tca	gcg	aaa	cct	gct	cca	cca	aaa	cct	gaa	ccc	327	
Arg	Ser	Ala	Arg	Leu	Ser	Ala	Lys	Pro	Ala	Pro	Pro	Lys	Pro	Glu	Pro		
26					31					36					41		

aaa cca aga aaa aca tct gct aag aaa gaa cct gga gca aag att agc 375  
 Lys Pro Arg Lys Thr Ser Ala Lys Lys Glu Pro Gly Ala Lys Ile Ser  
 42 47 52 57  
 aga ggt gct aaa ggg aag aag gag gaa aag cag gaa gct gga aag gaa 423  
 Arg Gly Ala Lys Gly Lys Lys Glu Glu Lys Gln Glu Ala Gly Lys Glu  
 58 63 68 73  
 gga cag aaa act gaa tct gta gat aac gag gga gaa tga attgtcatga 472  
 Gly Gln Lys Thr Glu Ser Val Asp Asn Glu Gly Glu \*  
 74 79 84  
 aaaattgggg ttgattttat gtatctcttg ggacaacttt taaaagctat ttttaccaag 532  
 tattttgtaa atgctaattt tttaggactc tactagttgg catacgaaaa tatataagga 592  
 tggacatttt atcgtctcat agtcatgctt tttggaaatt tacatcatcc tcaagtaaaa 652  
 taaatatcag ttaaattattg aaaaaaaaaa aaa 685

<210> 807  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (129)..(1106)

<400> 807  
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 gaggtcagct cccgcgtgtc tccgctcgac aggggtgcttg ggcagagccc atcgggtagg 120  
 cgcgggcc atg gcg cag tac aag ggc acc atg cgc gag gca ggc cgt gcc 170  
 Met Ala Gln Tyr Lys Gly Thr Met Arg Glu Ala Gly Arg Ala  
 1 5 10  
 atg cac ctc ctc aag aag cgc gaa agg cag cgg gag cag atg gag gtg 218  
 Met His Leu Leu Lys Lys Arg Glu Arg Gln Arg Glu Gln Met Glu Val  
 15 20 25 30  
 ctg aag cag cgc atc gcc gag gag acc atc ctc aag tcg cag gtg gac 266  
 Leu Lys Gln Arg Ile Ala Glu Glu Thr Ile Leu Lys Ser Gln Val Asp  
 31 36 41 46  
 aag agg ttc tcg gcg cat tac gac gcc gtg gag gcc gag ctg aag tcc 314  
 Lys Arg Phe Ser Ala His Tyr Asp Ala Val Glu Ala Glu Leu Lys Ser  
 47 52 57 62  
 agc acg gtg ggc ctg gtg acc ctg aac gac atg aag gcc cgg cag gag 362  
 Ser Thr Val Gly Leu Val Thr Leu Asn Asp Met Lys Ala Arg Gln Glu  
 63 68 73 78

gcc ctg gtc agg gag cgc gag cgg cag ctg gcc aag cgc cag cac ctg	410
Ala Leu Val Arg Glu Arg Glu Arg Gln Leu Ala Lys Arg Gln His Leu	
79 84 89 94	
gag gag cag cgg ctg cag cag gag cgg cag cgg gag cag gag cag cgg	458
Glu Glu Gln Arg Leu Gln Gln Glu Arg Gln Arg Glu Gln Glu Gln Arg	
95 100 105 110	
cgc gag cgc aag cgt aag atc tcc tgc ctg tcc ttt gca cta gac gac	506
Arg Glu Arg Lys Arg Lys Ile Ser Cys Leu Ser Phe Ala Leu Asp Asp	
111 116 121 126	
ctc gat gac cag gcc gac gcg gcc gag gcc agg cgc gcc gga aac ctg	554
Leu Asp Asp Gln Ala Asp Ala Ala Glu Ala Arg Arg Ala Gly Asn Leu	
127 132 137 142	
ggc aag aac ccc gac gtg gac acc agc ttc ctg cca gac cgc gac cgc	602
Gly Lys Asn Pro Asp Val Asp Thr Ser Phe Leu Pro Asp Arg Asp Arg	
143 148 153 158	
gag gag gag gag aac cgg ctc cga gag gag ctg cgc caa gag tgg gag	650
Glu Glu Glu Glu Asn Arg Leu Arg Glu Glu Leu Arg Gln Glu Trp Glu	
159 164 169 174	
gcg cag cgc gag aaa gtg aag gac gag gag atg gag gtc acc ttc agc	698
Ala Gln Arg Glu Lys Val Lys Asp Glu Glu Met Glu Val Thr Phe Ser	
175 180 185 190	
tac tgg gac ggc tcg ggc cac cgg cgc acg gtg cgg gtg cgc aag ggc	746
Tyr Trp Asp Gly Ser Gly His Arg Arg Thr Val Arg Val Arg Lys Gly	
191 196 201 206	
aac acg gtg cag cag ttc ctg aag aag gcg ctg cag ggg ctg cgc aag	794
Asn Thr Val Gln Gln Phe Leu Lys Lys Ala Leu Gln Gly Leu Arg Lys	
207 212 217 222	
gac ttc ctg gag ctg cgc tcc gcc ggc gtg gag cag ctc atg ttc atc	842
Asp Phe Leu Glu Leu Arg Ser Ala Gly Val Glu Gln Leu Met Phe Ile	
223 228 233 238	
aag gag gac ctc atc ctg ccg cac tac cac acc ttc tac gac ttc atc	890
Lys Glu Asp Leu Ile Leu Pro His Tyr His Thr Phe Tyr Asp Phe Ile	
239 244 249 254	
atc gcc agg gcg agg ggc aag agc ggg ccg ctc ttc agc ttc gat gtg	938
Ile Ala Arg Ala Arg Gly Lys Ser Gly Pro Leu Phe Ser Phe Asp Val	
255 260 265 270	
cac gat gac gtg cgc ctg ctc agc gac gcc acc atg gag aag gac gag	986
His Asp Asp Val Arg Leu Leu Ser Asp Ala Thr Met Glu Lys Asp Glu	
271 276 281 286	
tcg cac gcg ggc aag gtg gtg ctg cgc agc tgg tac gag aag aac aag	1034
Ser His Ala Gly Lys Val Val Leu Arg Ser Trp Tyr Glu Lys Asn Lys	
287 292 297 302	

cac atc ttc ccc gcc agc cgc tgg gag gcc tat gac ccc gag aag aag 1082  
 His Ile Phe Pro Ala Ser Arg Trp Glu Ala Tyr Asp Pro Glu Lys Lys  
 303 308 313 318  
 tgg gac aag tac acc atc cgc taa caccgcctg ccagagcggg aaccgggggt 1136  
 Trp Asp Lys Tyr Thr Ile Arg \*  
 319 324  
 ggggggagac actcatttct aggccccatc accagtcaact tgatttcgtg accttgattt 1196  
 cttcccccaa atttaataaaa gacagaggggt tctcatgatt cacattgggt gtgctattgc 1256  
 tgatgttatg ctttggttgc ttggttggtc ttttctgagt atttttagtgt tgccacctgg 1316  
 atttgctgca ttgctctgct gagctgtatt gaaaccatga ctggggccac tgtcagacag 1376  
 aaattagaat aggaggcaca ttttttacct ggtggttatg agcatggact tggggggccac 1436  
 agtgactgag tttgattccc gacacagcct cctccttgc gtgtagtttt gggttaagctt 1496  
 attaaacccc catgcctcag tttggtcacc tgtaaaagga aataacaaga gcacttactt 1556  
 tataagattg atgtgagtat taagtgaatt aatatttgta aaacgcttag ctcttaataa 1616  
 atgtttctgt tgttattaaa aaaaaaaaaa 1645

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 <211> 1317  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (260)..(934)

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 gccgcgagcc tccgcctott ttttggcacc gcacagtgga tccctggagg ccgagcgcca 120  
 cgccgcccgg gtacccggca gatcgcgagg tggaacgggc cgtcgctgcg ggggacagcg 180  
 ttccgaggca gttggtcctc tccaggatgc cgtaggcatc agctgaccgg cccagccac 240  
 gtgactacag gggcacttg atg gga atc atg gca gca tcc agg cca ttg tcc 292  
 Met Gly Ile Met Ala Ala Ser Arg Pro Leu Ser  
 1 5  
 cgc ttc tgg gag tgg gga aag aac atc gtc tgc gtg ggg agg aac tac 340  
 Arg Phe Trp Glu Trp Gly Lys Asn Ile Val Cys Val Gly Arg Asn Tyr  
 12 17 22 27  
 gcg gac cac gtc agg gag atg cgc agc gcg gtg ttg agc gag ccc gtg 388  
 Ala Asp His Val Arg Glu Met Arg Ser Ala Val Leu Ser Glu Pro Val

28	33	38	43	
ctg ttc ctg aag ccg tcc acg gcc tac ggg ccc gag ggc tcg ccc atc				436
Leu Phe Leu Lys Pro Ser Thr Ala Tyr Ala Pro Glu Gly Ser Pro Ile				
44	49	54	59	
ctc atg ccc gcg tac act cgc aac ctg cac cac gag ctg gag ctg ggc				484
Leu Met Pro Ala Tyr Thr Arg Asn Leu His His Glu Leu Glu Leu Gly				
60	65	70	75	
gtg gtg atg ggc aag cgc tgc cgc gca gtc ccc gag gct gcg gcc atg				532
Val Val Met Gly Lys Arg Cys Arg Ala Val Pro Glu Ala Ala Ala Met				
76	81	86	91	
gac tac gtg ggc ggc tat gcc ctg tgc ctg gat atg acc gcc cgg gac				580
Asp Tyr Val Gly Gly Tyr Ala Leu Cys Leu Asp Met Thr Ala Arg Asp				
92	97	102	107	
gtg cag gac gag tgc aag aag aag ggg ctg ccc tgg act ctg gcg aag				628
Val Gln Asp Glu Cys Lys Lys Lys Gly Leu Pro Trp Thr Leu Ala Lys				
108	113	118	123	
agc ttc acg gcg tcc tgc ccg gtc agc gcg ttc gtg ccc aag gag aag				676
Ser Phe Thr Ala Ser Cys Pro Val Ser Ala Phe Val Pro Lys Glu Lys				
124	129	134	139	
atc cct gac cct cac aag ctg aag ctc tgg ctc aag gtc aac ggc gaa				724
Ile Pro Asp Pro His Lys Leu Lys Leu Trp Leu Lys Val Asn Gly Glu				
140	145	150	155	
ctc aga cag gag ggt gag aca tcc tcc atg att ttt tcc atc ccc tac				772
Leu Arg Gln Glu Gly Glu Thr Ser Ser Met Ile Phe Ser Ile Pro Tyr				
156	161	166	171	
atc atc agc tat gtt tct aag atc ata acc ttg gaa gaa gga gat att				820
Ile Ile Ser Tyr Val Ser Lys Ile Ile Thr Leu Glu Glu Gly Asp Ile				
172	177	182	187	
atc ttg act ggg acg cca aag gga gtt gga ccg gtt aaa gaa aac gat				868
Ile Leu Thr Gly Thr Pro Lys Gly Val Gly Pro Val Lys Glu Asn Asp				
188	193	198	203	
gag atc gag gct ggc ata cac ggg ctg gtc agt atg aca ttt aaa gtg				916
Glu Ile Glu Ala Gly Ile His Gly Leu Val Ser Met Thr Phe Lys Val				
204	209	214	219	
gaa aag cca gaa tat tga gttatt tcttaacaag ttctgagaga gaaggagca				970
Glu Lys Pro Glu Tyr *				
220	225			
agacaagagc aagcaacggc tattaatatgt cacaatcctt taattagaaa ccatttattg				1030
gccggacgcg gtggctcacg cctgtaatcg cagcactttg ggaggccgag gcgggcggct				1090
cacgacgtca ggagatccag accatcttgg ctaacagggt gaaaccccgct ctctactaaa				1150
aatacaaaaa attagccggg cgtgggtggcg ggcgcctgta gtcccagcta ctctggaggc				1210



tgaggcagga gaatcaattg aacccgggag gcgagactta cagtgagctg agattgcgcc 1270  
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<400> 809

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1 5 10	
caa ctc tct gca gca tct aaa gaa att gga aga tgc aac aca aac caa	96
Gln Leu Ser Ala Ala Ser Lys Glu Ile Gly Arg Cys Asn Thr Asn Gln	
17 22 27 32	
aca atg ggc cat ttt gta cat tct tca gga ttc tgt gtg tcc atg ggg	144
Thr Met Gly His Phe Val His Ser Ser Gly Phe Cys Val Ser Met Gly	
33 38 43 48	
gca gcc cat ggc tgg cag ccc cat gaa ggc agg gcc agc atc tgt gtt	192
Ala Ala His Gly Trp Gln Pro His Glu Gly Arg Ala Ser Ile Cys Val	
49 54 59 64	
gtt atc agt acc cat cgg cac ctt gca cac gca tcc tca gaa gct tca	240
Val Ile Ser Thr His Arg His Leu Ala His Ala Ser Ser Glu Ala Ser	
65 70 75 80	
act ctg gag gca atg ggt cga aag gaa gaa gat gac tgc agt tcc tgg	288
Thr Leu Glu Ala Met Gly Arg Lys Glu Glu Asp Asp Cys Ser Ser Trp	
81 86 91 96	
aag aaa cag acc acc aac atc cgg aaa acc ttc att ttt atg gaa gtg	336
Lys Lys Gln Thr Thr Asn Ile Arg Lys Thr Phe Ile Phe Met Glu Val	
97 102 107 112	
ctg gga tca gga gct ttc tca gaa gtt ttc ctg gtg aag caa aga ctg	384
Leu Gly Ser Gly Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu	
113 118 123 128	
act ggg aag ctc ttt gct ctg aag tgc atc aag aag tca cct gcc ttc	432
Thr Gly Lys Leu Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe	

129	134	139	144	
cgg gac agc agc ctg gag aat gag att gct gtg ttg aaa aag atc aag				480
Arg Asp Ser Ser Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys				
145	150	155	160	
cat gaa aac att gtg acc ctg gag gac atc tat gag agc acc acc cac				528
His Glu Asn Ile Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Thr His				
161	166	171	176	
tac tac ctg gtc atg cag ctt gtt tct ggt ggg gag ctc ttt gac cgg				576
Tyr Tyr Leu Val Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg				
177	182	187	192	
atc ctg gag cgg ggt gtc tac aca gag aag gat gcc agt ctg gtg atc				624
Ile Leu Glu Arg Gly Val Tyr Thr Glu Lys Asp Ala Ser Leu Val Ile				
193	198	203	208	
cag cag gtc ttg tgc gca gtg aaa tac cta cat gag aat ggc atc gtc				672
Gln Gln Val Leu Ser Ala Val Lys Tyr Leu His Glu Asn Gly Ile Val				
209	214	219	224	
cac aga gac tta aag gtg tca agg cgg gag tcc tgg ccc gaa aac ctg				720
His Arg Asp Leu Lys Val Ser Arg Arg Glu Ser Trp Pro Glu Asn Leu				
225	230	235	240	
ctt tac ctt acc cct gaa gag aac tct aag atc atg atc act gac ttt				768
Leu Tyr Leu Thr Pro Glu Glu Asn Ser Lys Ile Met Ile Thr Asp Phe				
241	246	251	256	
ggt ctg tcc aag atg gaa cag aat ggc atc atg tcc act gcc tgt ggg				816
Gly Leu Ser Lys Met Glu Gln Asn Gly Ile Met Ser Thr Ala Cys Gly				
257	262	267	272	
acc cca ggc tac gtg gct cca gaa gtg ctg gcc cag aaa ccc tac agc				864
Thr Pro Gly Tyr Val Ala Pro Glu Val Leu Ala Gln Lys Pro Tyr Ser				
273	278	283	288	
aag gct gtg gat tgc tgg tcc atc ggc gtc atc acc tac ata ttg ctc				912
Lys Ala Val Asp Cys Trp Ser Ile Gly Val Ile Thr Tyr Ile Leu Leu				
289	294	299	304	
tgt gga tac ccc cca ttc tat gaa gaa acg gag tct aag ctt ttc gag				960
Cys Gly Tyr Pro Pro Phe Tyr Glu Glu Thr Glu Ser Lys Leu Phe Glu				
305	310	315	320	
aag atc aag gag ggc tac tat gag ttt gag tct cca ttc tgg gat gac				1008
Lys Ile Lys Glu Gly Tyr Tyr Glu Phe Glu Ser Pro Phe Trp Asp Asp				
321	326	331	336	
att tct gag tca gcc aag gac ttt att tgc cac ttg ctt gag aag gat				1056
Ile Ser Glu Ser Ala Lys Asp Phe Ile Cys His Leu Leu Glu Lys Asp				
337	342	347	352	
ccg aac gag cgg tac acc tgt gag aag gcc ttg agt cat ccc tgg att				1104
Pro Asn Glu Arg Tyr Thr Cys Glu Lys Ala Leu Ser His Pro Trp Ile				
353	358	363	368	

gac gga aac aca gcc ctc cac cgg gac atc tac cca tca gtc agc ctc	1152
Asp Gly Asn Thr Ala Leu His Arg Asp Ile Tyr Pro Ser Val Ser Leu	
369 374 379 384	
cag atc cag aag aac ttt gct aag agc aag tgg agg caa gcc ttc aac	1200
Gln Ile Gln Lys Asn Phe Ala Lys Ser Lys Trp Arg Gln Ala Phe Asn	
385 390 395 400	
gca gca gct gtg gtg cac cac atg agg aag cta cac atg aac ctg cac	1248
Ala Ala Ala Val Val His His Met Arg Lys Leu His Met Asn Leu His	
401 406 411 416	
agc ccg ggc gtc cgc cca gag gtg gag aac agg ccg cct gaa act caa	1296
Ser Pro Gly Val Arg Pro Glu Val Glu Asn Arg Pro Pro Glu Thr Gln	
417 422 427 432	
gcc tca gaa acc tct aga ccc agc tcc cct gag atc acc atc acc gag	1344
Ala Ser Glu Thr Ser Arg Pro Ser Ser Pro Glu Ile Thr Ile Thr Glu	
433 438 443 448	
gca cct gtc ctg gac cac agt gta gca ctc cct gcc ctg acc caa tta	1392
Ala Pro Val Leu Asp His Ser Val Ala Leu Pro Ala Leu Thr Gln Leu	
449 454 459 464	
ccc tgc cag cat ggc cgc cgg ccc act gcc cct ggt ggc agg tcc ctc	1440
Pro Cys Gln His Gly Arg Arg Pro Thr Ala Pro Gly Gly Arg Ser Leu	
465 470 475 480	
aac tgc ctg gtc aat ggc tcc ctc cac atc agc agc agc ctg gtg ccc	1488
Asn Cys Leu Val Asn Gly Ser Leu His Ile Ser Ser Ser Leu Val Pro	
481 486 491 496	
atg cat cag ggg tcc ctg gcc gcc ggg ccc tgt ggc tgc tgc tcc agc	1536
Met His Gln Gly Ser Leu Ala Ala Gly Pro Cys Gly Cys Cys Ser Ser	
497 502 507 512	
tgc ctg aac att ggg agc aaa gga aag tcc tcc tac tgc tct gag ccc	1584
Cys Leu Asn Ile Gly Ser Lys Gly Lys Ser Ser Tyr Cys Ser Glu Pro	
513 518 523 528	
aca ctc ctc aaa aag gcc aac aaa aaa cag aac ttc aag tcg gag gtc	1632
Thr Leu Leu Lys Lys Ala Asn Lys Lys Gln Asn Phe Lys Ser Glu Val	
529 534 539 544	
atg gta cca gtt aaa gcc agt ggc agc tcc cac tgc cgg gca ggg cag	1680
Met Val Pro Val Lys Ala Ser Gly Ser Ser His Cys Arg Ala Gly Gln	
545 550 555 560	
act gga gtc tgt ctc att atg tga ttcttgagc ctgtgcctat gtcactgcaa	1734
Thr Gly Val Cys Leu Ile Met *	
561 566	
ttttcaggag acatattcaa ctctctgtgt ctccaaacc tgggtgtctat ccggcagagg	1794
gaggaaggca gagcaagtgg agcagggtt agcaggagca gtttctggcc agaagcacca	1854

gcctgctgcc agcggggcag cccctcatag gaggcccagg agggagcccc aaggcgtaga 1914  
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 ctgctgctc tatgcccac accctacgtg gccgtggctc tgtgcagtgt tacgttagat 2034  
 agctctcgcc tgggtctgtg ctgtttgtcg tgaaaagctt aatgggctgg ccaggctgtg 2094  
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 Met Glu Leu Leu Ser Ala Leu  
 1 5  
 agc ctg ggc gaa ctg gcg ctc agc ttc tgc cgg gtg ccg ctc ttc ccc 162  
 Ser Leu Gly Glu Leu Ala Leu Ser Phe Ser Arg Val Pro Leu Phe Pro  
 8 13 18 23  
 gtc ttc gac ctc agt tac ttc atc gtc tcc atc ctc tac ctc aag tat 210  
 Val Phe Asp Leu Ser Tyr Phe Ile Val Ser Ile Leu Tyr Leu Lys Tyr  
 24 29 34 39  
 gag cca gga gca gtc gaa ctg tcc cgg cgc cac ccc atc gcg tcc tgg 258  
 Glu Pro Gly Ala Val Glu Leu Ser Arg Arg His Pro Ile Ala Ser Trp  
 40 45 50 55  
 ctg tgc gcc atg ctg cat tgc ttc ggg agc tac atc ctg gct gat ctg 306  
 Leu Cys Ala Met Leu His Cys Phe Gly Ser Tyr Ile Leu Ala Asp Leu  
 56 61 66 71  
 ctc ctt ggg gag cca ctg atc gat tac ttc agc aac aac tcc agc atc 354  
 Leu Leu Gly Glu Pro Leu Ile Asp Tyr Phe Ser Asn Asn Ser Ser Ile  
 72 77 82 87  
 ctg ctg gcc tca gct gtc tgg tac ttg att ttc ttc tgc ccc ctg gac 402  
 Leu Leu Ala Ser Ala Val Trp Tyr Leu Ile Phe Phe Cys Pro Leu Asp  
 88 93 98 103  
 ctc ttc tac aag tgt gtc tgc ttc ctg cct gtg aaa ctc atc ttc gtg 450  
 Leu Phe Tyr Lys Cys Val Cys Phe Leu Pro Val Lys Leu Ile Phe Val

104	109	114	119	
gcc atg aag gag gtg gtg cga gtc cgc aag atc gcg gtg ggc atc cat				498
Ala Met Lys Glu Val Val Arg Val Arg Lys Ile Ala Val Gly Ile His				
120	125	130	135	
cac gcc cat cac cac tac cac cac ggg tgg ttc gtc atg att gca act				546
His Ala His His His Tyr His His Gly Trp Phe Val Met Ile Ala Thr				
136	141	146	151	
ggg tgg gtc aaa ggt tct ggt gtc gcc ctc atg tcc aac ttt gag cag				594
Gly Trp Val Lys Gly Ser Gly Val Ala Leu Met Ser Asn Phe Glu Gln				
152	157	162	167	
ctg ctc cga ggg gtc tgg aag cca gag acc aac gag atc ctg cac atg				642
Leu Leu Arg Gly Val Trp Lys Pro Glu Thr Asn Glu Ile Leu His Met				
168	173	178	183	
tct ttc ccc acc aag gcc agc ctg tat gga gcc atc ctc ttc acc ctc				690
Ser Phe Pro Thr Lys Ala Ser Leu Tyr Gly Ala Ile Leu Phe Thr Leu				
184	189	194	199	
cag cag acc cgc tgg ctc cca gtg tcc aaa gcc agc ctc atc ttc atc				738
Gln Gln Thr Arg Trp Leu Pro Val Ser Lys Ala Ser Leu Ile Phe Ile				
200	205	210	215	
ttc acc ttg ttc atg gtg tcc tgt aag gtg ttt ctg aca gcc acc cac				786
Phe Thr Leu Phe Met Val Ser Cys Lys Val Phe Leu Thr Ala Thr His				
216	221	226	231	
tca cac agc tcc ccc ttt gat gcc ctg gag ggc tac atc tgc ccc gtg				834
Ser His Ser Ser Pro Phe Asp Ala Leu Glu Gly Tyr Ile Cys Pro Val				
232	237	242	247	
ctg ttt ggt tgc gcc tgc ggg ggt gac cat cac cac gac aac cat ggt				882
Leu Phe Gly Ser Ala Cys Gly Gly Asp His His His Asp Asn His Gly				
248	253	258	263	
ggg tcc cac agc ggt ggt ggg cca gga gct cag cat tgc gcc atg ccc				930
Gly Ser His Ser Gly Gly Gly Pro Gly Ala Gln His Ser Ala Met Pro				
264	269	274	279	
gcc aag tcc aag gag gag ttg agc gag ggc tcc agg aag aag aag gcc				978
Ala Lys Ser Lys Glu Glu Leu Ser Glu Gly Ser Arg Lys Lys Lys Ala				
280	285	290	295	
aag aag gcg gat tag ggggtggccc aaggggcacc ggggagagga cccggaccca				1033
Lys Lys Ala Asp *				
296				
ggaccctctg agctgggagg cttcctgcgc tcagatctat cctttcctgg ccttgacttc				1093
cccatctgca aatcagggtc attggctcac cctccagggc tgatgtgggg gttgagatat				1153
ggggatgagg atgaagaact tttgtagaaa tcggggttcc ctctttctct ctgccaggac				1213
cccatagagt cacagctttt ggaggggttc acagaatcct ggcagcagct ccagtcaaga				1273

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ctgaggcagg agaatcacat gaatccagga ggtggaggtt gcagtgagct gagatcttcc 1573  
cactgcactc cagcctggcc aataagacct gtctccagca agaccctgtc tcaaaaaaaaa 1633  
aaaaa 1638

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gtccgcactc ggccgcctgc cgtgcccgtc tgcgccctg tcctcctcac tcgggacgca 180  
gggaccgttt ttaaatcaca ggggcgtgtg tcagcctgcc ctaggacttc atg tct 236  
Met Ser  
1

ata tat ttc ccc att cac tgc ccc gac tat ctg aga tcg gcc aag atg 284  
Ile Tyr Phe Pro Ile His Cys Pro Asp Tyr Leu Arg Ser Ala Lys Met  
3 8 13 18

act gag gtg atg atg aac acc cag ccc atg gag gag atc ggc ctc agc 332  
Thr Glu Val Met Met Asn Thr Gln Pro Met Glu Glu Ile Gly Leu Ser  
19 24 29 34

ccc cgc aag gat ggc ctt tcc tac cag atc ttc cca gac ccg tca gat 380  
Pro Arg Lys Asp Gly Leu Ser Tyr Gln Ile Phe Pro Asp Pro Ser Asp  
35 40 45 50

ttt gac cgc tgc tgc aaa ctg aag gac cgt ctg ccc tcc ata gtg gtg 428  
Phe Asp Arg Cys Cys Lys Leu Lys Asp Arg Leu Pro Ser Ile Val Val  
51 56 61 66

gaa ccc aca gaa ggg gag gtg gag agc ggg gag ctc cgg tgg ccc cct 476  
Glu Pro Thr Glu Gly Glu Val Glu Ser Gly Glu Leu Arg Trp Pro Pro  
67 72 77 82

gag gag ttc ctg gtc cag gag gat gag caa gat aac tgc gaa gag aca	524
Glu Glu Phe Leu Val Gln Glu Asp Glu Gln Asp Asn Cys Glu Glu Thr	
83 88 93 98	
gcg aaa gaa aat aaa gag cag tag agtccctgtg gactcccatg ggtcatacca	578
Ala Lys Glu Asn Lys Glu Gln *	
99 104	
gccagcatct gttcctgaac tgtgtttttc ccatcatgac ggaagaagag agtgagccgc	638
aattgttctg aaaatgtcaa acgaggcttc tgttttgcac ctgcagatca ccgagttggt	698
tttcttttct tttcttgcct tttttttttt ttgaaatttg ccgagcagtg gagccctctg	758
acaatttgca aggccctctg agaaaggaag ctgcttagag ccaggggggtt agtgggtgag	818
gggagcgagt gctgtttttg agatcattat ctgaactcag gcagcctagt agaggcagtg	878
gtgggattcc aatgggtctt ggtgggtggg aggtggggca tgtgcaaagc aagcaaggaa	938
catttgggggt aagaaaacaa acatgaggca aaagaaaaaa tacatgtttt taagaaaaca	998
ttgagcagag aactgcagcc aggatgcgct cagcagacat tcaactctggc tgctgggaca	1058
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ttcaggtgtg ttggtctata tgacaggag gagagtaaag gagagcagga gcaattggct	1178
gcctgcaaag ccagctggag gtgaagtgca ggaaaggaaa ggtcacccca ttctactcca	1238
tggcctctct gctcccagct gtggtaggct cacatagcca gtgtgatcgg tttttaagag	1298
gcagtgcctt tcagcttttc tccctgatat atccattttg cttcccagca ctttttagga	1358
gtagtgagag cacttcctgc ccttgttggg agccccaggg tggacactca gcacgaagg	1418
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gccccatggg ggatcttgggt ctgtttttct tgtgggagcc tagtggagag cagacgtggc	1658
tttttatgtg tcttgttggg gaggtgactt gcatggtggg gacaaggctg tcgtggcaac	1718
cttgggatcg agtttgagac taaaggatgt catgagatcc ctggcttctc cccatgttgt	1778
tcccgacaaa gggcagaagg gaggcattggc aagggaacctc tgctgt	1824

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<213> Homo sapiens

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<221> CDS

<222> (268)..(1281)

<400> 812

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ctgggcgcgc gagctgggag ccgcgcgggt aggagcccgg cgcattgggt cagcccgggg 180

ctagagaccg agggccgggg tccggggccc ggcgggggac ccaggcggtt gaggctggtc 240

aggagtcagc cagcctgaaa gagcagg atg gat ctt gat gtg gtt aac atg 291

Met Asp Leu Asp Val Val Asn Met

1

5

ttt gtg att gcg ggc ggc acg ctg gcc atc cca atc ctg gca ttt gtg 339

Phe Val Ile Ala Gly Gly Thr Leu Ala Ile Pro Ile Leu Ala Phe Val

9

14

19

24

gct tca ttt ctt ctg tgg cct tca gca ctg ata aga atc tat tat tgg 387

Ala Ser Phe Leu Leu Trp Pro Ser Ala Leu Ile Arg Ile Tyr Tyr Trp

25

30

35

40

tac tgg cgg agg aca ttg ggc atg caa gtc cgc tat gtt cac cat gaa 435

Tyr Trp Arg Arg Thr Leu Gly Met Gln Val Arg Tyr Val His His Glu

41

46

51

56

gac tat cag ttc tgt tat tcc ttc cgg ggc agg cct ggg cac aaa ccc 483

Asp Tyr Gln Phe Cys Tyr Ser Phe Arg Gly Arg Pro Gly His Lys Pro

57

62

67

72

tcc atc ctc atg ctc cac gga ttc tct gcc cac aag gat atg tgg ctc 531

Ser Ile Leu Met Leu His Gly Phe Ser Ala His Lys Asp Met Trp Leu

73

78

83

88

agt gtg gtc aag ttc ctt cca aag aac ctg cac ttg gtc tgc gtg gac 579

Ser Val Val Lys Phe Leu Pro Lys Asn Leu His Leu Val Cys Val Asp

89

94

99

104

atg cca gga cat gag ggc acc acc cgc tcc tcc ctg gat gac ctg tcc 627

Met Pro Gly His Glu Gly Thr Thr Arg Ser Ser Leu Asp Asp Leu Ser

105

110

115

120

ata gat ggg caa gtt aag agg ata cac cag ttt gta gaa tgc ctg aag 675

Ile Asp Gly Gln Val Lys Arg Ile His Gln Phe Val Glu Cys Leu Lys

121

126

131

136

ctg aac aaa aaa cct ttc cac ctg gta ggc acc tcc atg ggt ggc cag 723

Leu Asn Lys Lys Pro Phe His Leu Val Gly Thr Ser Met Gly Gly Gln

137

142

147

152

gtg gct ggg gtg tat gct gct tac tac cca tcg gat gtc tcc agc ctg 771

Val Ala Gly Val Tyr Ala Ala Tyr Tyr Pro Ser Asp Val Ser Ser Leu



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tgt ctc gtg tgt cct gct ggc ctg cag tac tca act gac aat caa ttt				819
Cys Leu Val Cys Pro Ala Gly Leu Gln Tyr Ser Thr Asp Asn Gln Phe				
169	174	179	184	
gta caa cgg ctc aaa gaa ctg cag ggc tct gcc gcc gtg gag aag att				867
Val Gln Arg Leu Lys Glu Leu Gln Gly Ser Ala Ala Val Glu Lys Ile				
185	190	195	200	
ccc ttg atc ccg tct acc cca gaa gag atg agt gaa atg ctt cag ctc				915
Pro Leu Ile Pro Ser Thr Pro Glu Glu Met Ser Glu Met Leu Gln Leu				
201	206	211	216	
tgc tcc tat gtc cgc ttc aag gtg ccc cag cag atc ctg caa ggc ctt				963
Cys Ser Tyr Val Arg Phe Lys Val Pro Gln Gln Ile Leu Gln Gly Leu				
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Val Asp Val Arg Ile Pro His Asn Asn Phe Tyr Arg Lys Leu Phe Leu				
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Pro Arg Lys Thr Ala Lys Leu Ile Ile Asp Phe Leu Ala Ser Val His				
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Arg Leu Leu Arg Arg Tyr Arg Leu Ser His Asp Cys Ile Ser Leu Cys	
123 128 133 138	
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Ile Gln Ala Gln Asn Asn Leu Gly Ile Leu Trp Ser Glu Arg Glu Glu	
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Gln Tyr Met Lys Glu Val Gly Ser Pro Pro Leu Asp Pro Thr Glu Arg	
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Phe Glu Lys Val Tyr Thr His Asn Leu Tyr Tyr Leu Ala Gln Val Tyr	
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Gln His Leu Glu Met Phe Glu Lys Ala Ala His Tyr Cys His Ser Thr	
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Ala Glu Phe Arg Ala Ala Arg Lys Arg Ala Gly Leu Ala Ala Gln Pro  
6 11 16 21

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Pro Ala Ala Ser Gln Gly Ala Gln Thr Pro Gly Glu Lys Ala Glu Ala  
22 27 32 37

gca gcg act cta aag gca gcc cca ggc tgg cta aag cgg ttc ctg gta 259  
Ala Ala Thr Leu Lys Ala Ala Pro Gly Trp Leu Lys Arg Phe Leu Val  
38 43 48 53

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Trp Lys Pro Arg Pro Ala Ser Ala Arg Ala Gln Pro Gly Leu Val Gln  
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Glu Ala Ala Gln Pro Gln Gly Ser Thr Ser Glu Thr Pro Trp Asn Thr  
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Ala Ile Pro Leu Pro Ser Cys Trp Asp Gln Ser Phe Leu Thr Asn Ile  
86 91 96 101

acc ttc ttg aag gtt ctt ctc tgg ttg gtc ctg ctg gga ctg ttt gtg 451  
Thr Phe Leu Lys Val Leu Leu Trp Leu Val Leu Leu Gly Leu Phe Val  
102 107 112 117

gaa ctg gaa ttt ggc ctg gca tat ttt gtc ctg tcc ttg ttc tat tgg 499  
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118 123 128 133

atg tac gtc ggg aca cga ggc cct gaa gag aag aaa gag gga gag aag 547  
Met Tyr Val Gly Thr Arg Gly Pro Glu Glu Lys Lys Glu Gly Glu Lys  
134 139 144 149

agc gcc tac tct gtg ttc aat cca ggc tgt gaa gcc atc cag ggc acc 595  
Ser Ala Tyr Ser Val Phe Asn Pro Gly Cys Glu Ala Ile Gln Gly Thr  
150 155 160 165

ctg act gca gag cag ttg gag cgc gag tta cag ttg aga ccc ctg gca 643  
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166 171 176 181

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Gly Arg \*  
182

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Met Ser	
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Lys Ala Gly Ser Asp Gly Glu Ser Ile Gly Asn Cys Pro Phe Cys Gln	
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Arg Leu Phe Met Ile Leu Trp Leu Lys Gly Val Lys Phe Asn Val Thr	
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Thr Val Asp Met Thr Arg Lys Pro Glu Glu Leu Lys Asp Leu Ala Pro	
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Gly Thr Asn Pro Pro Phe Leu Val Tyr Asn Lys Glu Leu Lys Thr Asp	
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Phe Ile Lys Ile Glu Glu Phe Leu Glu Gln Thr Leu Ala Pro Pro Arg	
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Tyr Pro His Leu Ser Pro Lys Tyr Lys Glu Ser Phe Asp Val Gly Cys	
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Gly Val Trp Arg Tyr Leu His Asn Ala Tyr Ala Arg Glu Glu Phe Thr	
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His Thr Cys Pro Glu Asp Lys Glu Ile Glu Asn Thr Tyr Ala Asn Val	
227 232 237 242	
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Ala Lys Gln Lys Ser *	
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Leu Lys Ser Leu Lys His Phe Asp Cys Lys Glu Lys Gln Thr Leu Leu
12                      17                      22                      27

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Leu Ile Thr Asp Tyr Arg Val Arg Leu Gly Cys Gly Ser Phe Ala Gly
44                      49                      54                      59

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Ser Phe Leu Glu Tyr Tyr Ala Ala Asp Ile Ser Tyr Pro Val Arg Lys
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76                      81                      86                      91

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Gly Ser Pro Glu Glu Pro Val Val Gly Cys Pro Leu Gly Gln Arg Gln
92                      97                      102                      107

ccc tgc cgg aaa atg ctc ccc gac cgc tcg cgg gcc gcc cgg gac cgg      505
Pro Cys Arg Lys Met Leu Pro Asp Arg Ser Arg Ala Ala Arg Asp Arg
108                      113                      118                      123

gcc aac cag aag ctg gtg gag tac att gtg aag gcc aag ggc gcg gag      553
Ala Asn Gln Lys Leu Val Glu Tyr Ile Val Lys Ala Lys Gly Ala Glu
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 Met Pro Lys Pro Pro Asp Tyr Ser  
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 Glu Leu Ser Asp Ser Leu Thr Leu Ala Val Gly Thr Gly Arg Phe Ser  
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 Gly Pro Leu His Arg Ala Trp Arg Met Met Asn Phe Arg Gln Arg Met  
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 Gly Trp Ile Gly Val Gly Leu Tyr Leu Leu Ala Ser Ala Ala Ala Phe  
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 Tyr Tyr Val Phe Glu Ile Ser Glu Thr Tyr Asn Arg Leu Ala Leu Glu  
 57 62 67 72  
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 His Ile Gln Gln His Pro Glu Glu Pro Leu Glu Gly Thr Thr Trp Thr  
 73 78 83 88  
 cac tcc ttg aaa gct caa tta ctc tcc ttg cct ttt tgg gtg tgg aca 401  
 His Ser Leu Lys Ala Gln Leu Leu Ser Leu Pro Phe Trp Val Trp Thr  
 89 94 99 104  
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 105 110 115 120  
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 Cys Thr Arg Ala Asp Pro Lys Thr Val Gly Tyr Cys Ile Ile Pro Ile  
 121 126 131 136



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cca tct gaa gat act cag caa gaa aat ggc agc atg ttc tct ctc att			389
Pro Ser Glu Asp Thr Gln Gln Glu Asn Gly Ser Met Phe Ser Leu Ile			
105	110	115	
acc tgg aat att gat gga tta gat cta aac aat ctg tca gag agg gct			437
Thr Trp Asn Ile Asp Gly Leu Asp Leu Asn Asn Leu Ser Glu Arg Ala			
120	125	130	
cga ggg gtg tgt tcc tac tta gct ttg tac agc cca gat gtg ata ttt			485
Arg Gly Val Cys Ser Tyr Leu Ala Leu Tyr Ser Pro Asp Val Ile Phe			
135	140	145	
cta cag gaa gtt att ccc cca tat tat agc tac cta aag aag aga tca			533
Leu Gln Glu Val Ile Pro Pro Tyr Tyr Ser Tyr Leu Lys Lys Arg Ser			
150	155	160	165
agt aat tat gag att att aca ggt cat gaa gaa gga tat ttc aca gct			581
Ser Asn Tyr Glu Ile Ile Thr Gly His Glu Glu Gly Tyr Phe Thr Ala			
170	175	180	
ata atg ttg aag aaa tca aga gtg aaa tta aaa agc caa gag att att			629
Ile Met Leu Lys Lys Ser Arg Val Lys Leu Lys Ser Gln Glu Ile Ile			
185	190	195	
cct ttt cca agt acc aaa atg atg aga aac ctt tta tgt gtg cat gtg			677
Pro Phe Pro Ser Thr Lys Met Met Arg Asn Leu Leu Cys Val His Val			
200	205	210	
aat gtg tca gga aat gag ctt tgc ctt atg aca tcc cat ttg gag agc			725
Asn Val Ser Gly Asn Glu Leu Cys Leu Met Thr Ser His Leu Glu Ser			
215	220	225	
acc aga ggg cat gct gcg gaa cga atg aat cag tta aaa atg gtt tta			773
Thr Arg Gly His Ala Ala Glu Arg Met Asn Gln Leu Lys Met Val Leu			
230	235	240	245
aag aaa atg caa gag gct cca gag tca gct aca gtt ata ttt gca gga			821
Lys Lys Met Gln Glu Ala Pro Glu Ser Ala Thr Val Ile Phe Ala Gly			
250	255	260	
gat aca aat cta agg gat cga gag gtt acc aga tgt ggt ggt tta ccc			869
Asp Thr Asn Leu Arg Asp Arg Glu Val Thr Arg Cys Gly Gly Leu Pro			
265	270	275	
aac aac att gtg gat gtc tgg gag ttt ttg ggc aaa cct aaa cat tgc			917
Asn Asn Ile Val Asp Val Trp Glu Phe Leu Gly Lys Pro Lys His Cys			
280	285	290	
cag tat aca tgg gat aca caa atg aac tct aat ctt gga ata act gct			965
Gln Tyr Thr Trp Asp Thr Gln Met Asn Ser Asn Leu Gly Ile Thr Ala			
295	300	305	
gct tgt aaa ctt cgt ttt gat cga ata ttt ttc aga gca gca gca gaa			1013
Ala Cys Lys Leu Arg Phe Asp Arg Ile Phe Phe Arg Ala Ala Ala Glu			
310	315	320	325
gag gga cac att att ccc cga agt ttg gac ctt ctt gga tta gaa aaa			1061
Glu Gly His Ile Ile Pro Arg Ser Leu Asp Leu Leu Gly Leu Glu Lys			
330	335	340	

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 <222> (174)..(680)

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agccgctgcc ggggtgccga gggccgctcg ggcgcgcgtc gccacgggtc cca atg	176
	Met
	1
gag ccg ccg aat ctc tat ccg gtg aag ctc tac gtg tac gac ctg tcc	224
Glu Pro Pro Asn Leu Tyr Pro Val Lys Leu Tyr Val Tyr Asp Leu Ser	
2 7 12 17	
aaa ggc ctg gcc ccg ccg ctc agc ccc atc atg ctg ggg aaa caa ctg	272
Lys Gly Leu Ala Arg Arg Leu Ser Pro Ile Met Leu Gly Lys Gln Leu	
18 23 28 33	
gaa ggc atc tgg cac aca tcc ata gtt gtg cac aag gat gag ttc ttc	320
Glu Gly Ile Trp His Thr Ser Ile Val Val His Lys Asp Glu Phe Phe	
34 39 44 49	
ttc ggc agt ggt ggt atc tcc agc tgc ccc ccg gga ggg aca ttg ctt	368
Phe Gly Ser Gly Gly Ile Ser Ser Cys Pro Pro Gly Gly Thr Leu Leu	
50 55 60 65	
ggg cct cca gac tct gtg gtt gat gtg ggg agt aca gaa gtc aca gaa	416
Gly Pro Pro Asp Ser Val Val Asp Val Gly Ser Thr Glu Val Thr Glu	
66 71 76 81	
gaa atc ttt ctg gag tac ctc tcc tcc ctg ggg gag tcc ctg ttc cga	464
Glu Ile Phe Leu Glu Tyr Leu Ser Ser Leu Gly Glu Ser Leu Phe Arg	
82 87 92 97	
ggt gag gcc tac aac ctc ttt gaa cac aat tgt aac acc ttc agc aac	512
Gly Glu Ala Tyr Asn Leu Phe Glu His Asn Cys Asn Thr Phe Ser Asn	
98 103 108 113	
gaa gtg gca cag ttc ctg act ggg ccg aag att cct tct tac atc aca	560
Glu Val Ala Gln Phe Leu Thr Gly Arg Lys Ile Pro Ser Tyr Ile Thr	
114 119 124 129	
gac ctg ccc tct gaa gtt ctc tcc acg ccc ttt gga cag gca ctt ccg	608
Asp Leu Pro Ser Glu Val Leu Ser Thr Pro Phe Gly Gln Ala Leu Arg	
130 135 140 145	
ccc ctc ctg gac tcc att cag atc cag cct cca gga ggg agc tcc gtg	656
Pro Leu Leu Asp Ser Ile Gln Ile Gln Pro Pro Gly Gly Ser Ser Val	

146	151	156	161	
ggc aga ccc aac ggc cag agc taa caggactgcc tgggaccgcc ctgcctcacc				710
Gly Arg Pro Asn Gly Gln Ser *				
162	167			
agggcttttc ccttttttaa caaaacaaac cctaccagat ttctatttta taattttaca				770
tcagagctaa caaccagggg acggcttttt aaatttccca gggaaggaga ccgtcaggcc				830
gcatgtagac aatgctgcta agaaacagaa caaaatgccca ccccttctaa tagtattata				890
ctaattttatt aaaaaaaaaa aaa				913

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 <211> 1767  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (153)..(1223)

<220>  
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 <222> (1)..(1767)  
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ttgccggttt ggcgggggtga aaggttgcca ag atg gcg acg gcc ttg agc gag	173
Met Ala Thr Ala Leu Ser Glu	
1 5	
gag gag ctg gac aat gaa gac tat tac tcg ttg ctg aac gtg cgc agg	221
Glu Glu Leu Asp Asn Glu Asp Tyr Tyr Ser Leu Leu Asn Val Arg Arg	
8 13 18 23	
gag gcc tct tct gaa gag ctg aaa gct gcc tac cgg agg ctc tgt atg	269
Glu Ala Ser Ser Glu Glu Leu Lys Ala Ala Tyr Arg Arg Leu Cys Met	
24 29 34 39	
ctc tac cat cca gac aag cac aga gac cca gag ctc aag tca cag gcg	317
Leu Tyr His Pro Asp Lys His Arg Asp Pro Glu Leu Lys Ser Gln Ala	
40 45 50 55	
gaa cga ctg ttt aac ctt gtt cac cag gct tat gaa gtg ctt agt gac	365
Glu Arg Leu Phe Asn Leu Val His Gln Ala Tyr Glu Val Leu Ser Asp	
56 61 66 71	
ccc caa acc agg gcc atc tat gat ata tat ggg aag aga gga ctg gaa	413

Pro Gln Thr Arg Ala Ile Tyr Asp Ile Tyr Gly Lys Arg Gly Leu Glu	
72 77 82 87	
atg gaa gga tgg gag gtt gtg gaa agg agg aga acc cct gct gaa att	461
Met Glu Gly Trp Glu Val Val Glu Arg Arg Arg Thr Pro Ala Glu Ile	
88 93 98 103	
cga gag gag ttt gag cgg ctg cag aga gag aga gaa gag agg aga ttg	509
Arg Glu Glu Phe Glu Arg Leu Gln Arg Glu Arg Glu Glu Arg Arg Leu	
104 109 114 119	
cag cag cga acc aat ccc aag gga acg atc agc gtt gga gta gat gcc	557
Gln Gln Arg Thr Asn Pro Lys Gly Thr Ile Ser Val Gly Val Asp Ala	
120 125 130 135	
acc gac ctt ttt gat cgc tat gat gag gag tat gaa gat gtg tcc ggc	605
Thr Asp Leu Phe Asp Arg Tyr Asp Glu Glu Tyr Glu Asp Val Ser Gly	
136 141 146 151	
agt agc ttt ccg cag att gaa att aat aaa atg cac ata tcc cag tcc	653
Ser Ser Phe Pro Gln Ile Glu Ile Asn Lys Met His Ile Ser Gln Ser	
152 157 162 167	
att gag gca ccc ttg aca gcg aca gac aca gcc atc ctc tct gga agc	701
Ile Glu Ala Pro Leu Thr Ala Thr Asp Thr Ala Ile Leu Ser Gly Ser	
168 173 178 183	
ctc tca acc cag aat gga aat gga gga ggt tcc att aac ttt gcg ctc	749
Leu Ser Thr Gln Asn Gly Asn Gly Gly Gly Ser Ile Asn Phe Ala Leu	
184 189 194 199	
aga cga gta act tcg gca aag gga tgg gga gag ttg gaa ttt gga gct	797
Arg Arg Val Thr Ser Ala Lys Gly Trp Gly Glu Leu Glu Phe Gly Ala	
200 205 210 215	
gga gac cta cag ggg cct ttg ttc ggt ctc aag ctg ttc cgt aat ctc	845
Gly Asp Leu Gln Gly Pro Leu Phe Gly Leu Lys Leu Phe Arg Asn Leu	
216 221 226 231	
aca cca aga tgc ttt gtg aca aca aac tgt gct ctg cag ttt tca tcc	893
Thr Pro Arg Cys Phe Val Thr Thr Asn Cys Ala Leu Gln Phe Ser Ser	
232 237 242 247	
cgt gga atc cga ccc ggc ctg acc act gtc cta gct cgg aac cta gac	941
Arg Gly Ile Arg Pro Gly Leu Thr Thr Val Leu Ala Arg Asn Leu Asp	
248 253 258 263	
aag aac acc gtg ggc tac ctg cag tgg cac tgc agc tcc ccg ctc ctg	989
Lys Asn Thr Val Gly Tyr Leu Gln Trp His Cys Ser Ser Pro Leu Leu	
264 269 274 279	
cag gtc cag cgt cct cac agg aac acc agg gcc tgt gct ccg gag cct	1037
Gln Val Gln Arg Pro His Arg Asn Thr Arg Ala Cys Ala Pro Glu Pro	
280 285 290 295	
tcc ttc aga ccc ttc ctc cac gtg ccc act tgg gat gca gaa tgc agc	1085
Ser Phe Arg Pro Phe Leu His Val Pro Thr Trp Asp Ala Glu Cys Ser	



296	301	306	311	
gga gct agg acc ccc tcc acg gcc tgg acc tcg gct gca gta aag tta				1133
Gly Ala Arg Thr Pro Ser Thr Ala Trp Thr Ser Ala Ala Val Lys Leu				
312	317	322	327	
cgt gag gcc tgt ctc tcc ggg cct gga agt ggc agc cat cag ttg ctc				1181
Arg Glu Ala Cys Leu Ser Gly Pro Gly Ser Gly Ser His Gln Leu Leu				
328	333	338	343	
ttg ctg acc cct cgg agc aag cgc cgc aca ggt ggt ggc tga gacagct				1230
Leu Leu Thr Pro Arg Ser Lys Arg Arg Thr Gly Gly Gly *				
344	349	354		
ggcgcggggg gccccaaagct gcgcgggcct ccagcccacc cacagctggt gctgaagtca				1290
ggcctccctc cccagcactg gtatctgagt aacggctaag aacctccttc ctctggtttt				1350
gaaaagcagt tcgggttgtc caattctgta acattcatct ccatttttta aaaagggttc				1410
tctgacggcc ccacggcccg agccgcggtg agcgctcgtg tgcattgagcc tgggccccgg				1470
gcttccccgtg cgcctctgcc gcaggtgctt ctgggcaccc atcctctgcg tttcatttgc				1530
agtcgactgt acagaaggca ctcaccacaa taaacctttc ctgaaagcag aggctggcgc				1590
tcttccgtgt actgtgtgtt catcttcagg agggagggaa ccccttcccc agaggcctcc				1650
tccccatcct tcaactcctca ctcaaccaca aggcttcacg tgaagctggg gttccatttt				1710
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 <222> (132) .. (1214)

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cgacggaaac c atg ttt gtg gct cgc agc atc gcg gcg gac cac aag gat	170
Met Phe Val Ala Arg Ser Ile Ala Ala Asp His Lys Asp	
1 5 10	
ctc atc cac gat gtc tct ttc gac ttc cac ggg cgg cgg atg gca acc	218
Leu Ile His Asp Val Ser Phe Asp Phe His Gly Arg Arg Met Ala Thr	
14 19 24 29	

tgc tcc agc gat cag agc gtt aag gtc tgg gat aaa agt gaa agt ggt	266
Cys Ser Ser Asp Gln Ser Val Lys Val Trp Asp Lys Ser Glu Ser Gly	
30 35 40 45	
gat tgg cat tgt act gct agc tgg aag aca cat agt gga tct gta tgg	314
Asp Trp His Cys Thr Ala Ser Trp Lys Thr His Ser Gly Ser Val Trp	
46 51 56 61	
cgt gtg aca tgg gcc cat cct gaa ttt ggg cag gtt ttg gct tcc tgt	362
Arg Val Thr Trp Ala His Pro Glu Phe Gly Gln Val Leu Ala Ser Cys	
62 67 72 77	
tct ttt gac cga aca gct gct gta tgg gaa gaa ata gta gga gaa tca	410
Ser Phe Asp Arg Thr Ala Ala Val Trp Glu Glu Ile Val Gly Glu Ser	
78 83 88 93	
aat gat aaa ctg cga gga cag agc cac tgg gtt aaa agg aca act ctg	458
Asn Asp Lys Leu Arg Gly Gln Ser His Trp Val Lys Arg Thr Thr Leu	
94 99 104 109	
gtg gat agc aaa aca tct gtt act gat gtg aag ttt gct ccc aag cac	506
Val Asp Ser Lys Thr Ser Val Thr Asp Val Lys Phe Ala Pro Lys His	
110 115 120 125	
atg ggt ctt atg tta gca acc tgt tcc gca gat ggt ata gta aga atc	554
Met Gly Leu Met Leu Ala Thr Cys Ser Ala Asp Gly Ile Val Arg Ile	
126 131 136 141	
tat gag gca cca gat gtt atg aat ctc agc cag tgg tct ttg cag cat	602
Tyr Glu Ala Pro Asp Val Met Asn Leu Ser Gln Trp Ser Leu Gln His	
142 147 152 157	
gag atc tca tgt aag cta agc tgt agt tgt att tct tgg aac cct tca	650
Glu Ile Ser Cys Lys Leu Ser Cys Ser Cys Ile Ser Trp Asn Pro Ser	
158 163 168 173	
agc tct cgt gct cat tcc ccc atg atc gcc gta gga agt gat gac agt	698
Ser Ser Arg Ala His Ser Pro Met Ile Ala Val Gly Ser Asp Asp Ser	
174 179 184 189	
agc ccc aac gca atg gcc aag gtt cag att ttt gaa tat aat gaa aac	746
Ser Pro Asn Ala Met Ala Lys Val Gln Ile Phe Glu Tyr Asn Glu Asn	
190 195 200 205	
acc agg aaa tat gca aaa gct gaa act ctt atg aca gtc act gat cct	794
Thr Arg Lys Tyr Ala Lys Ala Glu Thr Leu Met Thr Val Thr Asp Pro	
206 211 216 221	
gtt cat gat att gca ttc gct cca aat ttg gga aga tct ttc cat att	842
Val His Asp Ile Ala Phe Ala Pro Asn Leu Gly Arg Ser Phe His Ile	
222 227 232 237	
cta gca ata gcg acc aaa gat gtg aga att ttt aca tta aag cct gtg	890
Leu Ala Ile Ala Thr Lys Asp Val Arg Ile Phe Thr Leu Lys Pro Val	
238 243 248 253	
agg aaa gaa ctg act tcc tct ggt ggg cca aca aag ttt gaa atc cat	938

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<221> CDS
<222> (132)..(1067)
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<400> 822

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Leu Ile His Asp Val Ser Phe Asp Phe His Gly Arg Arg Met Ala Thr	
14 19 24 29	
tgc tcc agc gat cag agc gtt aag gtc tgg gat aaa agt gaa agt ggt	266
Cys Ser Ser Asp Gln Ser Val Lys Val Trp Asp Lys Ser Glu Ser Gly	
30 35 40 45	
gat tgg cat tgt act gct agc tgg aag gtt aaa agg aca act ctg gtg	314
Asp Trp His Cys Thr Ala Ser Trp Lys Val Lys Arg Thr Thr Leu Val	
46 51 56 61	
gat agc aaa aca tct gtt act gat gtg aag ttt gct ccc aag cac atg	362
Asp Ser Lys Thr Ser Val Thr Asp Val Lys Phe Ala Pro Lys His Met	
62 67 72 77	
ggg ctt atg tta gca acc tgt tcc gca gat ggt ata gta aga atc tat	410
Gly Leu Met Leu Ala Thr Cys Ser Ala Asp Gly Ile Val Arg Ile Tyr	
78 83 88 93	
gag gca cca gat gtt atg aat ctc agc cag tgg tct ttg cag cat gag	458
Glu Ala Pro Asp Val Met Asn Leu Ser Gln Trp Ser Leu Gln His Glu	
94 99 104 109	
atc tca tgt aag cta agc tgt agt tgt att tct tgg aac cct tca agc	506
Ile Ser Cys Lys Leu Ser Cys Ser Cys Ile Ser Trp Asn Pro Ser Ser	
110 115 120 125	
tct cgt gct cat tcc ccc atg atc gcc gta gga agt gat gac agt agc	554
Ser Arg Ala His Ser Pro Met Ile Ala Val Gly Ser Asp Asp Ser Ser	
126 131 136 141	
ccc aac gca atg gcc aag gtt cag att ttt gaa tat aat gaa aac acc	602
Pro Asn Ala Met Ala Lys Val Gln Ile Phe Glu Tyr Asn Glu Asn Thr	
142 147 152 157	
agg aaa tat gca aaa gct gaa act ctt atg aca gtc act gat cct gtt	650
Arg Lys Tyr Ala Lys Ala Glu Thr Leu Met Thr Val Thr Asp Pro Val	
158 163 168 173	
cat gat att gca ttc gct cca aat ttg gga aga tct ttc cat att cta	698
His Asp Ile Ala Phe Ala Pro Asn Leu Gly Arg Ser Phe His Ile Leu	
174 179 184 189	
gca ata gcg acc aaa gat gtg aga att ttt aca tta aag cct gtg agg	746
Ala Ile Ala Thr Lys Asp Val Arg Ile Phe Thr Leu Lys Pro Val Arg	
190 195 200 205	
aaa gaa ctg act tcc tct ggt ggg cca aca aag ttt gaa atc cat ata	794
Lys Glu Leu Thr Ser Ser Gly Gly Pro Thr Lys Phe Glu Ile His Ile	
206 211 216 221	
gtg gct cag ttc gat aat cat aat tct cag gtc tgg cga gtg agt tgg	842
Val Ala Gln Phe Asp Asn His Asn Ser Gln Val Trp Arg Val Ser Trp	

222	227	232	237	
aat ata aca gga acg gtg cta gca tct tca gga gat gat ggg tgt gta				890
Asn Ile Thr Gly Thr Val Leu Ala Ser Ser Gly Asp Asp Gly Cys Val				
238	243	248	253	
aga ttg tgg aaa gct aat tat atg gac aat tgg aag tgt act ggt att				938
Arg Leu Trp Lys Ala Asn Tyr Met Asp Asn Trp Lys Cys Thr Gly Ile				
254	259	264	269	
ttg aaa ggt aat ggg agc cca gtc aat ggg agt tct cag cag gga acc				986
Leu Lys Gly Asn Gly Ser Pro Val Asn Gly Ser Ser Gln Gln Gly Thr				
270	275	280	285	
tca aat cct tcc cta ggt tca aat att cca agt ctt cag aat tca tta				1034
Ser Asn Pro Ser Leu Gly Ser Asn Ile Pro Ser Leu Gln Asn Ser Leu				
286	291	296	301	
aat gga tct tct gct ggc aga aag cac agc tga gtacaagc taactggagt				1085
Asn Gly Ser Ser Ala Gly Arg Lys His Ser *				
302	307	312		
aactttgctg ttttgctgct tgttgcacgc acacaggaat ggaaagcgag ctccttttcc				1145
ccttccccag cgccgtttga cctctcccaa gatacaccag cagcctgctt actactaaac				1205
gcaatccaaa aggcctttaa aaatacagtg tatatttttt gtactagtca gtttattgac				1265
actatttgaa acttttgaaa tataaacgga gaggccttct gttgagacat tgtcaccaaa				1325
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acctccatta gaccaagtgc aggaggagga atgtgaagta gaaagggatga ctgaacatgg	180
gacaccaaag ccctttcgaa agtttgacag tgtagctttt ggagaaagtc aaagtgagga	240
tgaacaattt gaaaatgact tagagacaga cccaccaaac tggcagcagc ttgttagtgc	300



att ctt gta ttg tta caa aag cag gat gat aga ctg gtt tta agg tgt	1159
Ile Leu Val Leu Leu Gln Lys Gln Asp Asp Arg Leu Val Leu Arg Cys	
198 203 208 213	
cat agt aag att ctg gca tct aca gct gat agc aaa cac acg ttt agc	1207
His Ser Lys Ile Leu Ala Ser Thr Ala Asp Ser Lys His Thr Phe Ser	
214 219 224 229	
cct gtc att aag ttg agt aca gtg ttg gtt cga caa gtg gca aca gat	1255
Pro Val Ile Lys Leu Ser Thr Val Leu Val Arg Gln Val Ala Thr Asp	
230 235 240 245	
aac aaa gct tta ttc gtc att tcc atg tca gac aat ggc gct cag att	1303
Asn Lys Ala Leu Phe Val Ile Ser Met Ser Asp Asn Gly Ala Gln Ile	
246 251 256 261	
tat gaa ctg gtg gca cag aca gtt tct gaa aag act gtc tgg cag gac	1351
Tyr Glu Leu Val Ala Gln Thr Val Ser Glu Lys Thr Val Trp Gln Asp	
262 267 272 277	
cta atc tgt cgg atg gct gca tca gtg aag gag caa tcc aca aag cca	1399
Leu Ile Cys Arg Met Ala Ala Ser Val Lys Glu Gln Ser Thr Lys Pro	
278 283 288 293	
att cca tta cca cag tca aca cct ggc gaa gga gat aat gat gaa gaa	1447
Ile Pro Leu Pro Gln Ser Thr Pro Gly Glu Gly Asp Asn Asp Glu Glu	
294 299 304 309	
gat cct tca aaa tta aaa gag gag cag cat ggc att tca gtc act ggt	1495
Asp Pro Ser Lys Leu Lys Glu Glu Gln His Gly Ile Ser Val Thr Gly	
310 315 320 325	
ttg cag agt cca gac aga gat ttg gga tta gaa tct acc tta ata tgc	1543
Leu Gln Ser Pro Asp Arg Asp Leu Gly Leu Glu Ser Thr Leu Ile Ser	
326 331 336 341	
tca aaa cct cag tct cat tca ctg agt acc tct ggc aaa tca gag gta	1591
Ser Lys Pro Gln Ser His Ser Leu Ser Thr Ser Gly Lys Ser Glu Val	
342 347 352 357	
cgt gat ctg ttt gtg gct gag aga cag ttt gca aag gaa caa cat aca	1639
Arg Asp Leu Phe Val Ala Glu Arg Gln Phe Ala Lys Glu Gln His Thr	
358 363 368 373	
gat ggc aca cta aag gaa gtt gga gaa gat tat caa atc gca atc cca	1687
Asp Gly Thr Leu Lys Glu Val Gly Glu Asp Tyr Gln Ile Ala Ile Pro	
374 379 384 389	
gat tca cac ctg cct gtc tca gaa gaa cgg tgg gca ttg gat gca cta	1735
Asp Ser His Leu Pro Val Ser Glu Glu Arg Trp Ala Leu Asp Ala Leu	
390 395 400 405	
aga aat ttg ggt ttg ttg aag cag ttg ctg gtg caa cag cta ggt ttg	1783
Arg Asn Leu Gly Leu Leu Lys Gln Leu Leu Val Gln Gln Leu Gly Leu	
406 411 416 421	

act gag aag agc gtt cag gaa gac tgg caa cat ttc cca aga tac aga	1831
Thr Glu Lys Ser Val Gln Glu Asp Trp Gln His Phe Pro Arg Tyr Arg	
422 427 432 437	
aca gcc tct cag ggg ccg cag aca gac agt gtc atc cag aac tct gaa	1879
Thr Ala Ser Gln Gly Pro Gln Thr Asp Ser Val Ile Gln Asn Ser Glu	
438 443 448 453	
aat att aag gcc tat cat tct ggt gaa gga cat atg ccc ttt aga act	1927
Asn Ile Lys Ala Tyr His Ser Gly Glu Gly His Met Pro Phe Arg Thr	
454 459 464 469	
gga act ggt gac att gca act tgt tac agt cca cgg act tca act gaa	1975
Gly Thr Gly Asp Ile Ala Thr Cys Tyr Ser Pro Arg Thr Ser Thr Glu	
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Asp Val Lys Phe His Gln Cys Val Arg Leu Ser Arg Phe Glu Asn Asp	
235 240 245 250	
cgc acc atc tcc ttc atc cca ccc gac ggc gag ttc gag ctc atg tcc	939
Arg Thr Ile Ser Phe Ile Pro Pro Asp Gly Glu Phe Glu Leu Met Ser	
251 256 261 266	
tac cgt ctc aac acc cac gtc aag cct ttg ata tgg atc gag tcg gtg	987
Tyr Arg Leu Asn Thr His Val Lys Pro Leu Ile Trp Ile Glu Ser Val	
267 272 277 282	
atc gag aag cac tcc cac agc cgc atc gag tac atg atc aag ggc ggc	1035
Ile Glu Lys His Ser His Ser Arg Ile Glu Tyr Met Ile Lys Gly Gly	
283 288 293 298	
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Lys Glu Tyr Leu Met Arg Ala His Phe Gly Leu Pro Ser Val Glu Ala	
299 304 309 314	
gaa gac aag gag ggc aag ccc ccg atc agt gtc aag ttc gag atc cct	1131
Glu Asp Lys Glu Gly Lys Pro Pro Ile Ser Val Lys Phe Glu Ile Pro	
315 320 325 330	
tac ttc act acc tcc ggc atc cag gtg cgc tac ctg aag atc att gag	1179
Tyr Phe Thr Thr Ser Gly Ile Gln Val Arg Tyr Leu Lys Ile Ile Glu	
331 336 341 346	
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Lys Ser Gly Tyr Gln Ala Leu Pro Trp Val Arg Tyr Ile Thr Gln Asn	
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gga gat tac cag ctc cgg acc cag tga ggggc tgcgcagcc aacaccccg	1279
Gly Asp Tyr Gln Leu Arg Thr Gln *	
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<212> DNA  
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<222> (512)..(754)

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8 13 18 23  
agg tat ttc cac tgt cca gca gat agc tca gaa cta gcc tac gac cca 628  
Arg Tyr Phe His Cys Pro Ala Asp Ser Ser Glu Leu Ala Tyr Asp Pro  
24 29 34 39  
cag gtg gtc atg aat gcc gac act ttg agt tac tgt cag aag gag gcc 676  
Pro Val Val Met Asn Ala Asp Thr Leu Ser Tyr Cys Gln Lys Glu Ala  
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tgg tgt aag ctg gcc ttc tat ctc ctc tcc ttc ttc tac tac ctt tac	724
Trp Cys Lys Leu Ala Phe Tyr Leu Leu Ser Phe Phe Tyr Tyr Leu Tyr	
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Cys Met Ile Tyr Thr Leu Val Ser Ser *	
72 77	
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<222> (234)..(875)

<400> 828

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gaggaggggc	aggaccagat	cttttgagag	ctgagggttg	agggcattga	gccaacacac	180
agatttgtcg	cctctgtccc	cgaagacacc	tgccacctcc	atgctggagcc	aag atg	236
					Met	
					1	
ggg aat gga act gag gaa gat tat aac ttt gtc ttc aag gtg gtg ctg	284					
Gly Asn Gly Thr Glu Glu Asp Tyr Asn Phe Val Phe Lys Val Val Leu						
2 7 12 17						
atc ggc gaa tca ggt gtg ggg aag acc aat cta ctc tcc cga ttc acg	332					
Ile Gly Glu Ser Gly Val Gly Lys Thr Asn Leu Leu Ser Arg Phe Thr						
18 23 28 33						
cgc aat gag ttc agc cac gac agc cgc acc acc atc ggg gtt gag ttc	380					
Arg Asn Glu Phe Ser His Asp Ser Arg Thr Thr Ile Gly Val Glu Phe						
34 39 44 49						
tcc acc cgc act gtg atg ttg ggc acc gct gct gtc aag gct cag atc	428					
Ser Thr Arg Thr Val Met Leu Gly Thr Ala Ala Val Lys Ala Gln Ile						
50 55 60 65						
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Trp Asp Thr Ala Gly Leu Glu Arg Tyr Arg Ala Ile Thr Ser Ala Tyr						
66 71 76 81						
tat cgt ggt gca gtg ggg gcc ctc ctg gtg ttt gac cta acc aag cac	524					
Tyr Arg Gly Ala Val Gly Ala Leu Leu Val Phe Asp Leu Thr Lys His						
82 87 92 97						
cag acc tat gct gtg gtg gag cga tgg ctg aag gag ctc tat gac cat	572					
Gln Thr Tyr Ala Val Val Glu Arg Trp Leu Lys Glu Leu Tyr Asp His						
98 103 108 113						
gct gaa gcc acg atc gtc gtc atg ctc gtg ggt aac aaa agt gac ctc	620					
Ala Glu Ala Thr Ile Val Val Met Leu Val Gly Asn Lys Ser Asp Leu						
114 119 124 129						
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Ser Gln Ala Arg Glu Val Pro Thr Glu Glu Ala Arg Met Phe Ala Glu						
130 135 140 145						
aac aat gga ctg ctc ttc ctg gag acc tca gcc ctg gac tct acc aat	716					
Asn Asn Gly Leu Leu Phe Leu Glu Thr Ser Ala Leu Asp Ser Thr Asn						
146 151 156 161						
gtt gag cta gcc ttt gag act gtc ctg aaa gaa atc ttt gcg aag gtg	764					
Val Glu Leu Ala Phe Glu Thr Val Leu Lys Glu Ile Phe Ala Lys Val						
162 167 172 177						



agt gat gaa gac ttc aaa ccc cgg att gtc ccc tac tac agg gac ccc	478
Ser Asp Glu Asp Phe Lys Pro Arg Ile Val Pro Tyr Tyr Arg Asp Pro	
64 69 74 79	
aac aag ccc tac aag aag gtg ctc agg act cgg tac atc cag aca gag	526
Asn Lys Pro Tyr Lys Lys Val Leu Arg Thr Arg Tyr Ile Gln Thr Glu	
80 85 90 95	
ctg ggc tcc cgt gag cgg ttg ctg gtg gct gtc ctg acc tcc cga gct	574
Leu Gly Ser Arg Glu Arg Leu Leu Val Ala Val Leu Thr Ser Arg Ala	
96 101 106 111	
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Thr Leu Ser Thr Leu Ala Val Ala Val Asn Arg Thr Val Ala His His	
112 117 122 127	
ttc cct cgg tta ctc tac ttc act ggg cag cgg ggg gcc cgg gct cca	670
Phe Pro Arg Leu Leu Tyr Phe Thr Gly Gln Arg Gly Ala Arg Ala Pro	
128 133 138 143	
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Ala Gly Met Gln Val Val Ser His Gly Asp Glu Arg Pro Ala Trp Leu	
144 149 154 159	
atg tca gag acc ctg cgc cac ctt cac aca cac ttt ggg gcc gac tac	766
Met Ser Glu Thr Leu Arg His Leu His Thr His Phe Gly Ala Asp Tyr	
160 165 170 175	
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Asp Trp Phe Phe Ile Met Gln Asp Asp Thr Tyr Val Gln Ala Pro Arg	
176 181 186 191	
ctg gca gcc ctt gct ggc cac ctc agc atc aac caa gac ctg tac tta	862
Leu Ala Ala Leu Ala Gly His Leu Ser Ile Asn Gln Asp Leu Tyr Leu	
192 197 202 207	
ggc cgg gca gag gag ttc att ggc gca ggc gag cag gcc cgg tac tgt	910
Gly Arg Ala Glu Glu Phe Ile Gly Ala Gly Glu Gln Ala Arg Tyr Cys	
208 213 218 223	
cat ggg ggc ttt ggc tac ctg ttg tca cgg agt ctc ctg ctt cgt ctg	958
His Gly Gly Phe Gly Tyr Leu Leu Ser Arg Ser Leu Leu Leu Arg Leu	
224 229 234 239	
cgg cca cat ctg gat ggc tgc cga gga gac att ctc agt gcc cgt cct	1006
Arg Pro His Leu Asp Gly Cys Arg Gly Asp Ile Leu Ser Ala Arg Pro	
240 245 250 255	
gac gag tgg ctt gga cgc tgc ctc att gac tct ctg ggc gtc ggc tgt	1054
Asp Glu Trp Leu Gly Arg Cys Leu Ile Asp Ser Leu Gly Val Gly Cys	
256 261 266 271	
gtc tca cag cac cag ggg cag cag tat cgc tca ttt gaa ctg gcc aaa	1102
Val Ser Gln His Gln Gly Gln Gln Tyr Arg Ser Phe Glu Leu Ala Lys	
272 277 282 287	

aat agg gac cct gag aag gaa ggg agc tcg gct ttc ctg agt gcc ttc	1150
Asn Arg Asp Pro Glu Lys Glu Gly Ser Ser Ala Phe Leu Ser Ala Phe	
288 293 298 303	
gcc gtg cac cct gtc tcc gaa ggt acc ctc atg tac cgg ctc cac aaa	1198
Ala Val His Pro Val Ser Glu Gly Thr Leu Met Tyr Arg Leu His Lys	
304 309 314 319	
cgc ttc agc gct ctg gag ttg gag cgg gct tac agt gaa ata gaa caa	1246
Arg Phe Ser Ala Leu Glu Leu Glu Arg Ala Tyr Ser Glu Ile Glu Gln	
320 325 330 335	
ctg cag gct cag atc cgg aac ctg acc gtg ctg acc ccc gaa ggg gag	1294
Leu Gln Ala Gln Ile Arg Asn Leu Thr Val Leu Thr Pro Glu Gly Glu	
336 341 346 351	
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Ala Gly Leu Ser Trp Pro Val Gly Leu Pro Ala Pro Phe Thr Pro His	
352 357 362 367	
tct cgc ttt gag gtg ctg ggc tgg gac tac ttc aca gag cag cac acc	1390
Ser Arg Phe Glu Val Leu Gly Trp Asp Tyr Phe Thr Glu Gln His Thr	
368 373 378 383	
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Phe Ser Cys Ala Asp Gly Ala Pro Lys Cys Pro Leu Gln Gly Ala Ser	
384 389 394 399	
agg gcg gac gtg ggt gat gcg ttg gag act gcc ctg gag cag ctc aat	1486
Arg Ala Asp Val Gly Asp Ala Leu Glu Thr Ala Leu Glu Gln Leu Asn	
400 405 410 415	
cgg cgc tat cag ccc cgc ctg cgc ttc cag aag cag cga ctg ctc aac	1534
Arg Arg Tyr Gln Pro Arg Leu Arg Phe Gln Lys Gln Arg Leu Leu Asn	
416 421 426 431	
ggc tat cgg cgc ttc gac cca gca cgg ggc atg gag tac acc ctg gac	1582
Gly Tyr Arg Arg Phe Asp Pro Ala Arg Gly Met Glu Tyr Thr Leu Asp	
432 437 442 447	
ctg ctg ttg gaa tgt gtg aca cag cgt ggg cac cgg cgg gcc ctg gct	1630
Leu Leu Leu Glu Cys Val Thr Gln Arg Gly His Arg Arg Ala Leu Ala	
448 453 458 463	
cgc agg gtc agc ctg ctg cgg cca ctg agc cgg gtg gaa atc cta cct	1678
Arg Arg Val Ser Leu Leu Arg Pro Leu Ser Arg Val Glu Ile Leu Pro	
464 469 474 479	
atg ccc tat gtc act gag gcc acc cga gtg cag ctg gtg ctg cca ctc	1726
Met Pro Tyr Val Thr Glu Ala Thr Arg Val Gln Leu Val Leu Pro Leu	
480 485 490 495	
ctg gtg gct gaa gct gct gca gcc ccg gct ttc ctc gag gcg ttt gca	1774
Leu Val Ala Glu Ala Ala Ala Pro Ala Phe Leu Glu Ala Phe Ala	
496 501 506 511	
gcc aat gtc ctg gag cca cga gaa cat gca ttg ctc acc ctg ttg ctg	1822



Ala Asn Val Leu Glu Pro Arg Glu His Ala Leu Leu Thr Leu Leu Leu	
512 517 522 527	
gtc tac ggg cca cga gaa ggt ggc cgt gga gct cca gac cca ttt ctt	1870
Val Tyr Gly Pro Arg Glu Gly Gly Arg Gly Ala Pro Asp Pro Phe Leu	
528 533 538 543	
ggg gtg aag gct gca gca gcg gag tta gag cga cgg tac cct ggg acg	1918
Gly Val Lys Ala Ala Ala Ala Glu Leu Glu Arg Arg Tyr Pro Gly Thr	
544 549 554 559	
agg ctg gcc tgg ctc gct gtg cga gca gag gcc cct tcc cag gtg cga	1966
Arg Leu Ala Trp Leu Ala Val Arg Ala Glu Ala Pro Ser Gln Val Arg	
560 565 570 575	
ctc atg gac gtg gtc tgc aag aag cac cct gtg gac act ctc ttc ttc	2014
Leu Met Asp Val Val Ser Lys Lys His Pro Val Asp Thr Leu Phe Phe	
576 581 586 591	
ctt acc acc gtg tgg aca agg cct ggg ccc gaa gtc ctc aac cgc tgt	2062
Leu Thr Thr Val Trp Thr Arg Pro Gly Pro Glu Val Leu Asn Arg Cys	
592 597 602 607	
cgc atg aat gcc atc tct ggc tgg cag gcc ttc ttt cca gtc cat ttc	2110
Arg Met Asn Ala Ile Ser Gly Trp Gln Ala Phe Phe Pro Val His Phe	
608 613 618 623	
cag gag ttc aat cct gcc ctg tca cca cag aga tca ccc cca ggg ccc	2158
Gln Glu Phe Asn Pro Ala Leu Ser Pro Gln Arg Ser Pro Pro Gly Pro	
624 629 634 639	
cgc ggg gct ggc cct gac ccc ccc tcc cct cct ggt gct gac ccc tcc	2206
Pro Gly Ala Gly Pro Asp Pro Pro Ser Pro Pro Gly Ala Asp Pro Ser	
640 645 650 655	
cgg ggg gct cct ata ggg ggg aga ttt gac cgg cag gct tct gcg gag	2254
Arg Gly Ala Pro Ile Gly Gly Arg Phe Asp Arg Gln Ala Ser Ala Glu	
656 661 666 671	
ggc tgc ttc tac aac gct gac tac ctg gcg gcc cga gcc cgg ctg gca	2302
Gly Cys Phe Tyr Asn Ala Asp Tyr Leu Ala Ala Arg Ala Arg Leu Ala	
672 677 682 687	
ggt gaa ctg gca ggc cag gaa gag gag gaa gcc ctg gag ggg ctg gag	2350
Gly Glu Leu Ala Gly Gln Glu Glu Glu Glu Ala Leu Glu Gly Leu Glu	
688 693 698 703	
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Val Met Asp Val Phe Leu Arg Phe Ser Gly Leu His Leu Phe Arg Ala	
704 709 714 719	
gta gag cca ggg ctg gtg cag aag ttc tcc ctg cga gac tgc agc cca	2446
Val Glu Pro Gly Leu Val Gln Lys Phe Ser Leu Arg Asp Cys Ser Pro	
720 725 730 735	
cgg ctc agt gaa gaa ctc tac cac cgc tgc cgc ctc agc aac ctg gag	2494
Arg Leu Ser Glu Glu Leu Tyr His Arg Cys Arg Leu Ser Asn Leu Glu	

736	741	746	751	
ggg cta ggg ggc cgt gcc cag ctg gct atg gct ctc ttt gag cag gag				2542
Gly Leu Gly Gly Arg Ala Gln Leu Ala Met Ala Leu Phe Glu Gln Glu				
752	757	762	767	
cag gcc aat agc act tag cccgcc tggggggccct aacctcatta cctttccttt				2596
Gln Ala Asn Ser Thr *				
768	773			
gtctgcctca gccccaggaa gggcaaggca agatgggtgga cagatagaga attgttgctg				2656
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attgggacca gagacccgc aagtggcctg tttgcctgga catccacctg tacgtcccca	180
ggtttcggga ggcccagggg cg atg cca gac ccc gcg gcg cac ctg ccc ttc	232
Met Pro Asp Pro Ala Ala His Leu Pro Phe	
1 5	
ttc tac ggc agc atc tcg cgt gcc gag gcc gag gag cac ctg aag ctg	280
Phe Tyr Gly Ser Ile Ser Arg Ala Glu Ala Glu Glu His Leu Lys Leu	
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Ala Gly Met Ala Asp Gly Leu Phe Leu Leu Arg Gln Cys Leu Arg Ser	
27 32 37 42	
ctg ggc ggc tat gtg ctg tcg ctc gtg cac gat gtg cgc ttc cac cac	376
Leu Gly Gly Tyr Val Leu Ser Leu Val His Asp Val Arg Phe His His	
43 48 53 58	
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Phe Pro Ile Glu Arg Gln Leu Asn Gly Thr Tyr Ala Ile Ala Gly Gly	
59 64 69 74	
aaa gcg cac tgt gga ccg gca gag ctc tgc gag ttc tac tcg cgc gac	472
Lys Ala His Cys Gly Pro Ala Glu Leu Cys Glu Phe Tyr Ser Arg Asp	
75 80 85 90	

ccc gac ggg ctg ccc tgc aac ctg cgc aag ccg tgc aac cgg ccg tcg	520
Pro Asp Gly Leu Pro Cys Asn Leu Arg Lys Pro Cys Asn Arg Pro Ser	
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ggc ctc gag ccg cag ccg ggg gtc ttc gac tgc ctg cga gac gcc atg	568
Gly Leu Glu Pro Gln Pro Gly Val Phe Asp Cys Leu Arg Asp Ala Met	
107 112 117 122	
gtg cgt gac tac gtg cgc cag acg tgg aag ctg gag ggc gag gcc ctg	616
Val Arg Asp Tyr Val Arg Gln Thr Trp Lys Leu Glu Gly Glu Ala Leu	
123 128 133 138	
gag cag gcc atc atc agc cag gcc ccg cag gtg gag aag ctc att gct	664
Glu Gln Ala Ile Ile Ser Gln Ala Pro Gln Val Glu Lys Leu Ile Ala	
139 144 149 154	
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Thr Thr Ala His Glu Arg Met Pro Trp Tyr His Ser Ser Leu Thr Arg	
155 160 165 170	
gag gag gcc gag cgc aaa ctt tac tct ggg gcg cag acc gac ggc aag	760
Glu Glu Ala Glu Arg Lys Leu Tyr Ser Gly Ala Gln Thr Asp Gly Lys	
171 176 181 186	
ttc ctg ctg agg ccg cgg aag gag cag ggc aca tac gcc ctg tcc ctc	808
Phe Leu Leu Arg Pro Arg Lys Glu Gln Gly Thr Tyr Ala Leu Ser Leu	
187 192 197 202	
atc tat ggg aag acg gtg tac cac tac ctc atc agc caa gac aag gcg	856
Ile Tyr Gly Lys Thr Val Tyr His Tyr Leu Ile Ser Gln Asp Lys Ala	
203 208 213 218	
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Gly Lys Tyr Cys Ile Pro Glu Gly Thr Lys Phe Asp Thr Leu Trp Gln	
219 224 229 234	
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Leu Val Glu Tyr Leu Lys Leu Lys Ala Asp Gly Leu Ile Tyr Cys Leu	
235 240 245 250	
aag gag gcc tgc ccc aac agc agt gcc agc aac gcc tca ggg gct gct	1000
Lys Glu Ala Cys Pro Asn Ser Ser Ala Ser Asn Ala Ser Gly Ala Ala	
251 256 261 266	
gct ccc aca ctc cca gcc cac cca tcc acg ttg act cat cct cag aga	1048
Ala Pro Thr Leu Pro Ala His Pro Ser Thr Leu Thr His Pro Gln Arg	
267 272 277 282	
cga atc gac acc ctc aac tca gat gga tac acc cct gag cca gca cgc	1096
Arg Ile Asp Thr Leu Asn Ser Asp Gly Tyr Thr Pro Glu Pro Ala Arg	
283 288 293 298	
ata acg tcc cca gac aaa ccg cgg ccg atg ccc atg gac acg agc gtg	1144
Ile Thr Ser Pro Asp Lys Pro Arg Pro Met Pro Met Asp Thr Ser Val	
299 304 309 314	
tat gag agc ccc tac agc gac cca gag gag ctc aag gac aag aag ctc	1192

Tyr Glu Ser Pro Tyr Ser Asp Pro Glu Glu Leu Lys Asp Lys Lys Leu	
315 320 325 330	
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Phe Leu Lys Arg Asp Asn Leu Leu Ile Ala Asp Ile Glu Leu Gly Cys	
331 336 341 346	
ggc aac ttt ggc tca gtg cgc cag ggc gtg tac cgc atg cgc aag aag	1288
Gly Asn Phe Gly Ser Val Arg Gln Gly Val Tyr Arg Met Arg Lys Lys	
347 352 357 362	
cag atc gac gtg gcc atc aag gtg ctg aag cag ggc acg gag aag gca	1336
Gln Ile Asp Val Ala Ile Lys Val Leu Lys Gln Gly Thr Glu Lys Ala	
363 368 373 378	
gac acg gaa gag atg atg cgc gag ggc cag atc atg cac cag ctg gac	1384
Asp Thr Glu Glu Met Met Arg Glu Ala Gln Ile Met His Gln Leu Asp	
379 384 389 394	
aac ccc tac atc gtg cgg ctc att ggc gtc tgc cag gcc gag gcc ctc	1432
Asn Pro Tyr Ile Val Arg Leu Ile Gly Val Cys Gln Ala Glu Ala Leu	
395 400 405 410	
atg ctg gtc atg gag atg gct ggg ggc ggg ccg ctg cac aag ttc ctg	1480
Met Leu Val Met Glu Met Ala Gly Gly Gly Pro Leu His Lys Phe Leu	
411 416 421 426	
gtc ggc aag agg gag gag atc cct gtg agc aat gtg gcc gag ctg ctg	1528
Val Gly Lys Arg Glu Glu Ile Pro Val Ser Asn Val Ala Glu Leu Leu	
427 432 437 442	
cac cag gtg tcc atg ggg atg aag tac ctg gag gag aag aac ttt gtg	1576
His Gln Val Ser Met Gly Met Lys Tyr Leu Glu Glu Lys Asn Phe Val	
443 448 453 458	
cac cgt gac ctg ggc gcc cgc aac gtc ctg ctg gtt aac cgg cac tac	1624
His Arg Asp Leu Ala Ala Arg Asn Val Leu Leu Val Asn Arg His Tyr	
459 464 469 474	
gcc aag atc agc gac ttt ggc ctc tcc aaa gca ctg ggt gcc gac gac	1672
Ala Lys Ile Ser Asp Phe Gly Leu Ser Lys Ala Leu Gly Ala Asp Asp	
475 480 485 490	
agc tac tac act gcc cgc tca gca ggg aag tgg ccg ctc aag tgg tac	1720
Ser Tyr Tyr Thr Ala Arg Ser Ala Gly Lys Trp Pro Leu Lys Trp Tyr	
491 496 501 506	
gca ccc gaa tgc atc aac ttc cgc aag ttc tcc agc cgc agc gat gtc	1768
Ala Pro Glu Cys Ile Asn Phe Arg Lys Phe Ser Ser Arg Ser Asp Val	
507 512 517 522	
tgg agc tat ggg gtc acc atg tgg gag gcc ttg tcc tac ggc cag aag	1816
Trp Ser Tyr Gly Val Thr Met Trp Glu Ala Leu Ser Tyr Gly Gln Lys	
523 528 533 538	
ccc tac aag aag atg aaa ggg ccg gag gtc atg gcc ttc atc gag cag	1864
Pro Tyr Lys Lys Met Lys Gly Pro Glu Val Met Ala Phe Ile Glu Gln	

539	544	549	554	
ggc aag cgg atg gag tgc cca cca gag tgt cca ccc gaa ctg tac gca				1912
Gly Lys Arg Met Glu Cys Pro Pro Glu Cys Pro Pro Glu Leu Tyr Ala				
555	560	565	570	
ctc atg agt gac tgc tgg atc tac aag tgg gag gat cgc ccc gac ttc				1960
Leu Met Ser Asp Cys Trp Ile Tyr Lys Trp Glu Asp Arg Pro Asp Phe				
571	576	581	586	
ctg acc gtg gag cag cgc atg cga gcc tgt tac tac agc ctg gcc agc				2008
Leu Thr Val Glu Gln Arg Met Arg Ala Cys Tyr Tyr Ser Leu Ala Ser				
587	592	597	602	
aag gtg gaa ggg ccc cca ggc agc aca cag aag gct gag gct gcc tgt				2056
Lys Val Glu Gly Pro Pro Gly Ser Thr Gln Lys Ala Glu Ala Ala Cys				
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Ala *	
619	
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gcagctagaa cagcctgggtc aggagcgtaa cggagtgggtg cgccaacgtg agaggaaacc	180
cggtgcgggc tgcgcttttc tgtccccaag ccgttctaga cgcgggaaaa atg ctt	236
	Met Leu

tct gaa agc agc tcc ttt ttg aag ggt gtg atg ctt gga agc att ttc	284
Ser Glu Ser Ser Ser Phe Leu Lys Gly Val Met Leu Gly Ser Ile Phe	
3 8 13 18	
tgt gct ttg atc act atg cta gga cac att agg att ggt cat gga aat	332
Cys Ala Leu Ile Thr Met Leu Gly His Ile Arg Ile Gly His Gly Asn	
19 24 29 34	
aga atg cac cac cat gag cat cat cac cta caa gct cct aac aaa gaa	380
Arg Met His His His Glu His His His Leu Gln Ala Pro Asn Lys Glu	
35 40 45 50	
gat atc ttg aaa att tca gag gat gag cgc atg gag ctc agt aag agc	428
Asp Ile Leu Lys Ile Ser Glu Asp Glu Arg Met Glu Leu Ser Lys Ser	
51 56 61 66	
ttt cga gta tac tgt att atc ctt gta aaa ccc aaa gat gtg agt ctt	476
Phe Arg Val Tyr Cys Ile Ile Leu Val Lys Pro Lys Asp Val Ser Leu	
67 72 77 82	
tgg gct gca gta aag gag act tgg acc aaa cac tgt gac aaa gca gag	524
Trp Ala Ala Val Lys Glu Thr Trp Thr Lys His Cys Asp Lys Ala Glu	
83 88 93 98	
ttc ttc agt tct gaa aat gtt aaa gag ttt gag tca att aat atg gac	572
Phe Phe Ser Ser Glu Asn Val Lys Glu Phe Glu Ser Ile Asn Met Asp	
99 104 109 114	
aca aat gac atg tgg tta atg atg aga aaa gct tac aaa tac gcc ttt	620
Thr Asn Asp Met Trp Leu Met Met Arg Lys Ala Tyr Lys Tyr Ala Phe	
115 120 125 130	
gat aag tat aga gac caa tac aac tgg ttc ttc ctt gca cgc ccc act	668
Asp Lys Tyr Arg Asp Gln Tyr Asn Trp Phe Phe Leu Ala Arg Pro Thr	
131 136 141 146	
acg ttt gct atc att gaa aac cta aag tat ttt ttg tta aaa aag gat	716
Thr Phe Ala Ile Ile Glu Asn Leu Lys Tyr Phe Leu Leu Lys Lys Asp	
147 152 157 162	
cca tca cag cct ttc tat cta ggc cac act ata aaa tct gga gac ctt	764
Pro Ser Gln Pro Phe Tyr Leu Gly His Thr Ile Lys Ser Gly Asp Leu	
163 168 173 178	
gaa tat gtg ggt atg gaa gga gga att gtc tta agt gta gaa tca atg	812
Glu Tyr Val Gly Met Glu Gly Gly Ile Val Leu Ser Val Glu Ser Met	
179 184 189 194	
aaa aga ctt aac agc ctt ctc aat atc cca gaa aag tgt cct gaa cag	860
Lys Arg Leu Asn Ser Leu Leu Asn Ile Pro Glu Lys Cys Pro Glu Gln	
195 200 205 210	
gga ggg atg att tgg aag ata tct gaa gat aaa cag cta gca gtt tgc	908
Gly Gly Met Ile Trp Lys Ile Ser Glu Asp Lys Gln Leu Ala Val Cys	
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38 43 48 53	
caa ggt gaa act cgt tat ttt gta aaa gaa ttt gaa gaa aaa cgt ggt	246
Gln Gly Glu Thr Arg Tyr Phe Val Lys Glu Phe Glu Glu Lys Arg Gly	
54 59 64 69	
ctt cga gaa atg cga gtt ctt gaa aat ttg aag aac atg atc cat gaa	294
Leu Arg Glu Met Arg Val Leu Glu Asn Leu Lys Asn Met Ile His Glu	
70 75 80 85	
aca aat gaa cat act ctt ccc aaa tgt aga gac aca atg cgg gac agc	342
Thr Asn Glu His Thr Leu Pro Lys Cys Arg Asp Thr Met Arg Asp Ser	
86 91 96 101	
ctc agc cag gtt ctc cag aga ttg caa gca gct aat gac tca gtc tgt	390
Leu Ser Gln Val Leu Gln Arg Leu Gln Ala Ala Asn Asp Ser Val Cys	
102 107 112 117	
aga ctc caa cag agg gaa cag gaa cga aaa aag att cat agt gac cac	438
Arg Leu Gln Gln Arg Glu Gln Glu Arg Lys Lys Ile His Ser Asp His	
118 123 128 133	
tta gta gct agt gag aaa cag cat atg ctc cag tgg gac aac ttc atg	486
Leu Val Ala Ser Glu Lys Gln His Met Leu Gln Trp Asp Asn Phe Met	
134 139 144 149	
aag gag caa ccc aac aaa agg gct gaa gtg gat gaa gag cac aga aaa	534
Lys Glu Gln Pro Asn Lys Arg Ala Glu Val Asp Glu Glu His Arg Lys	
150 155 160 165	
gcc atg gaa agg ctt aaa gaa caa tat gct gag atg gag aag gac cta	582
Ala Met Glu Arg Leu Lys Glu Gln Tyr Ala Glu Met Glu Lys Asp Leu	
166 171 176 181	
gog aaa ttt tca acc ttt taa ga acttgaacca caacaatcac aaactaatga	635
Ala Lys Phe Ser Thr Phe *	
182 187	
gaagatgttc acctctctcc tgaaaactat tcccaccaga ccgttttagcc tctgcttcaa	695
gcttagcaat atattcagtg gcactcttat atcagaagaa agaagtttct actggcattc	755
tgattggata tttaaagaag ggtgccacat ttttcagct ttaagtgcct atatatgatt	815
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tgatcatctt ttccattgat tagctcagag aactgtaggt atagacttct tagaaagata	935
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aag  atg gcg gaa ggg gag gac gtg gga tgg tgg cgg agc tgg ctg cag      348
      Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln
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cag agc tac caa gca gtc aaa gag aag tcc tct gaa gcc ttg gag ttt      396
Gln Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe
      16             21             26             31

atg aag cgg gac ctg acg gag ttt acc cag gtg gtg cag cat gac acg      444
Met Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr
      32             37             42             47

gcc tgt acc atc gca gcc acg gcc agc gtg gtc aag gag aag ctg gct      492
Ala Cys Thr Ile Ala Ala Thr Ala Ser Val Val Lys Glu Lys Leu Ala
      48             53             58             63

acg gaa ggc tcc tca gga gca aca gag aag atg aag aaa ggg tta tct      540
Thr Glu Gly Ser Ser Gly Ala Thr Glu Lys Met Lys Lys Gly Leu Ser
      64             69             74             79

gac ttc cta ggg gtg atc tca gac acc ttt gcc cct tcg cca gac aaa      588
Asp Phe Leu Gly Val Ile Ser Asp Thr Phe Ala Pro Ser Pro Asp Lys
      80             85             90             95

acc atc gac tgc gat gtc atc acc ctg atg ggc aca ccg tct ggc aca      636
Thr Ile Asp Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly Thr
      96             101            106            111

gct gag ccc tat gat ggc acc aag gct cgc ctc tat agc ctg cag tcg      684
Ala Glu Pro Tyr Asp Gly Thr Lys Ala Arg Leu Tyr Ser Leu Gln Ser
      112            117            122            127

gac cca gca acc tac tgt aat gaa cca gat ggg ccc ccg gaa ttg ttt      732
Asp Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu Phe

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128 133 138 143  
 780 828 876 924 972 1020 1068 1116 1164 1212 1260 1308 1356 1404  
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Asp Ala Trp Leu Ser Gln Phe Cys Leu Glu Glu Lys Lys Gly Glu Ile				
144	149	154	159	
tca gag ctc ctt gta ggc agc ccc tcc atc cgg gcc ctc tac acc aag				828
Ser Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr Lys				
160	165	170	175	
atg gtt cca gca gct gtt tcc cat tca gaa ttc tgg cat cgg tat ttc				876
Met Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr Phe				
176	181	186	191	
tat aaa gtc cat cag tta gag cag gag cag gcc cgg agg gac gcc ctg				924
Tyr Lys Val His Gln Leu Glu Gln Glu Gln Ala Arg Arg Asp Ala Leu				
192	197	202	207	
aag cag cgg gcg gaa cag agc atc tct gaa gag ccc ggc tgg gag gag				972
Lys Gln Arg Ala Glu Gln Ser Ile Ser Glu Glu Pro Gly Trp Glu Glu				
208	213	218	223	
gag gaa gag gag ctc atg ggc att tca ccc ata tct cca aaa gag gca				1020
Glu Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu Ala				
224	229	234	239	
aag gtt cct gtg gcc aaa att tct aca ttc cct gaa gga gaa cct ggc				1068
Lys Val Pro Val Ala Lys Ile Ser Thr Phe Pro Glu Gly Glu Pro Gly				
240	245	250	255	
ccc cag agc ccc tgt gaa gag aat ctg gtg act tca gtt gag ccc cca				1116
Pro Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro Pro				
256	261	266	271	
gca gag gtg act cca tca gag agc agt gag agc atc tcc ctc gtg aca				1164
Ala Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val Thr				
272	277	282	287	
cag atc gcc aac ccg gcc act gca cct gag gca cga gtg cta ccc aag				1212
Gln Ile Ala Asn Pro Ala Thr Ala Pro Glu Ala Arg Val Leu Pro Lys				
288	293	298	303	
gac ctg tcc caa aag ctg cta gag gca tcc ttg gag gaa cag ggc ctg				1260
Asp Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly Leu				
304	309	314	319	
gct gtg gat gtg ggt gag act gga ccc tca ccc cct att cac tcc aag				1308
Ala Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser Lys				
320	325	330	335	
ccc cta acg cct gct ggc cac acc ggc ggc cca gag ccc agg cct cca				1356
Pro Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro Pro				
336	341	346	351	
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Ala Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg Val				
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Phe Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn Gly	
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Lys Lys Gly Ser Ser Thr Asp Ile Ser Glu Asp Trp Glu Lys Asp Phe	
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gac ttg gac atg act gaa gag gag gtg cag atg gca ctt tcc aaa gtg	1548
Asp Leu Asp Met Thr Glu Glu Glu Val Gln Met Ala Leu Ser Lys Val	
400 405 410 415	
gat gcc tcc ggg gag gtg agt ggg cct ggt ggg tca gag gga agc gag	1596
Asp Ala Ser Gly Glu Val Ser Gly Pro Gly Gly Ser Glu Gly Ser Glu	
416 421 426 431	
cct aat ggt cct ggg tgt gag agc tct ccc cag cca gcc cag ctg tcc	1644
Pro Asn Gly Pro Gly Cys Glu Ser Ser Pro Gln Pro Ala Gln Leu Ser	
432 437 442 447	
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Pro Gln Glu Gly Pro Cys Ser Cys Leu Arg *	
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Met Ala Glu Gly Glu Asp Val Gly Trp Trp Arg Ser Trp Leu Gln	
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Gln Ser Tyr Gln Ala Val Lys Glu Lys Ser Ser Glu Ala Leu Glu Phe	
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Met Lys Arg Asp Leu Thr Glu Phe Thr Gln Val Val Gln His Asp Thr	
32 37 42 47	
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48 53 58 63	
att gca gcc tgt tcc cgg ggc gct tgc ttc ctc tgc ccg ttc tct ata	540
Ile Ala Ala Cys Ser Arg Gly Ala Cys Phe Leu Cys Pro Phe Ser Ile	
64 69 74 79	
cag acg gaa ggc tcc tca gga gca aca gag aag atg aag aaa ggg tta	588
Gln Thr Glu Gly Ser Ser Gly Ala Thr Glu Lys Met Lys Lys Gly Leu	
80 85 90 95	
tct gac ttc cta ggg gtg atc tca gac acc ttt gcc cct tcg cca gac	636
Ser Asp Phe Leu Gly Val Ile Ser Asp Thr Phe Ala Pro Ser Pro Asp	
96 101 106 111	
aaa acc atc gac tgc gat gtc atc acc ctg atg ggc aca ccg tct ggc	684
Lys Thr Ile Asp Cys Asp Val Ile Thr Leu Met Gly Thr Pro Ser Gly	
112 117 122 127	
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Thr Ala Glu Pro Tyr Asp Gly Thr Lys Ala Arg Leu Tyr Ser Leu Gln	
128 133 138 143	
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Ser Asp Pro Ala Thr Tyr Cys Asn Glu Pro Asp Gly Pro Pro Glu Leu	
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Ile Ser Glu Leu Leu Val Gly Ser Pro Ser Ile Arg Ala Leu Tyr Thr	
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Lys Met Val Pro Ala Ala Val Ser His Ser Glu Phe Trp His Arg Tyr	
192 197 202 207	
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208 213 218 223	

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224 229 234 239	
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Glu Glu Glu Glu Glu Leu Met Gly Ile Ser Pro Ile Ser Pro Lys Glu	
240 245 250 255	
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256 261 266 271	
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Gly Pro Gln Ser Pro Cys Glu Glu Asn Leu Val Thr Ser Val Glu Pro	
272 277 282 287	
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Pro Ala Glu Val Thr Pro Ser Glu Ser Ser Glu Ser Ile Ser Leu Val	
288 293 298 303	
 aca cag atc gcc aac ccg gcc act gca cct gag gca cga gtg cta ccc	1260
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304 309 314 319	
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Lys Asp Leu Ser Gln Lys Leu Leu Glu Ala Ser Leu Glu Glu Gln Gly	
320 325 330 335	
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Leu Ala Val Asp Val Gly Glu Thr Gly Pro Ser Pro Pro Ile His Ser	
336 341 346 351	
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Lys Pro Leu Thr Pro Ala Gly His Thr Gly Gly Pro Glu Pro Arg Pro	
352 357 362 367	
 cca gcc aga gta gag act ctg agg gag gag gcg ccc aca gac tta cgg	1452
Pro Ala Arg Val Glu Thr Leu Arg Glu Glu Ala Pro Thr Asp Leu Arg	
368 373 378 383	
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Val Phe Glu Leu Asn Ser Asp Ser Gly Lys Ser Thr Pro Ser Asn Asn	
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Gly Lys Lys Gly Ser Ser Thr Asp Ile Ser Glu Asp Trp Glu Lys Asp	
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Phe Asp Leu Asp Met Thr Glu Glu Glu Val Gln Met Ala Leu Ser Lys	
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Val Asp Ala Ser Gly Glu Val Ser Gly Pro Gly Gly Ser Glu Gly Ser	
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Tyr Asp Gly Ile Asp Cys Val Tyr Gly Leu Glu Leu His Arg Asp Glu	
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Arg Val Leu Ser Leu Lys Ile Leu Ser Asp Arg Val Ala Ser Ser His	
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Ile Ser Asp Ala Asn Leu Ala Asn Thr Ile Ile Gly Lys Ala Val Glu	
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Val Leu Ala Gln Ala Pro Ile Met Lys Ala Trp Phe Tyr Ile Thr Tyr	
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Glu Lys Asp Pro Val Leu Tyr Met Tyr Gln Leu Leu Asp Asp Tyr Lys	
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Gln Val Glu Thr Lys Pro Ser Val Tyr Phe Ile Lys Phe Asp Asp Asp	
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ctgggtatgc ctctctatcc tctctctctcc cccagcaggc	235
atg aag acc ccc aac	
Met Lys Thr Pro Asn	



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Ala Gln Glu Ala Glu Gly Gln Gln Thr Arg Ala Ala Gly Arg Ala	
6 11 16 21	
act ggg tct gca aac atg aca aag aaa aaa gtc tcc caa aag aag cag	331
Thr Gly Ser Ala Asn Met Thr Lys Lys Lys Val Ser Gln Lys Lys Gln	
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Arg Gly Arg Pro Ser Ser Gln Pro Arg Arg Asn Ile Val Gly Cys Arg	
38 43 48 53	
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Ile Ser His Gly Trp Lys Glu Gly Asp Glu Pro Ile Thr Gln Trp Lys	
54 59 64 69	
gga acc gtt ctg gat cag gtg cct ata aat ccc tct ctt tat ctg gtg	475
Gly Thr Val Leu Asp Gln Val Pro Ile Asn Pro Ser Leu Tyr Leu Val	
70 75 80 85	
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Lys Tyr Asp Gly Ile Asp Cys Val Tyr Gly Leu Glu Leu His Arg Asp	
86 91 96 101	
gaa agg gtt ttg tct ctt aaa att ctt tct gac agg gtg gca tca tct	571
Glu Arg Val Leu Ser Leu Lys Ile Leu Ser Asp Arg Val Ala Ser Ser	
102 107 112 117	
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His Ile Ser Asp Ala Asn Leu Ala Asn Thr Ile Ile Gly Lys Ala Val	
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gaa cac atg ttt gag gga gag cat ggt tct aag gat gaa tgg agg ggg	667
Glu His Met Phe Glu Gly Glu His Gly Ser Lys Asp Glu Trp Arg Gly	
134 139 144 149	
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Met Val Leu Ala Gln Ala Pro Ile Met Lys Ala Trp Phe Tyr Ile Thr	
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Tyr Glu Lys Asp Pro Val Leu Tyr Met Tyr Gln Leu Leu Asp Asp Tyr	
166 171 176 181	
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Lys Glu Gly Asp Leu Arg Ile Met Pro Glu Ser Ser Glu Ser Pro Pro	
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Thr Glu Arg Glu Pro Gly Gly Val Val Asp Gly Leu Ile Gly Lys His	
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ctc cga gag gta aca tat tcc cga agc aca ggg gaa aac gaa caa gtt      309
Leu Arg Glu Val Thr Tyr Ser Arg Ser Thr Gly Glu Asn Glu Gln Val
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Ser Arg Ser Gln Gln Arg Gly Leu Arg Arg Val Arg Asp Leu Cys Arg
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gtt ctg cag ttg cca cca aca ttt gag gat acc gcg gtt gcc tac tac      405
Val Leu Gln Leu Pro Pro Thr Phe Glu Asp Thr Ala Val Ala Tyr Tyr
 82                               87                               92                               97

caa cag gca tat cgg cac tct ggc atc cga gcg gcc agg ctg caa aag      453
Gln Gln Ala Tyr Arg His Ser Gly Ile Arg Ala Ala Arg Leu Gln Lys
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aag gag gtg ttg gtt ggg tgc tgc gtc tta atc acc tgc cga cag cat      501
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aac tgg ccc cta aca atg ggg gcc atc tgc acg ctg ttg tat gca gat      549
Asn Trp Pro Leu Thr Met Gly Ala Ile Cys Thr Leu Leu Tyr Ala Asp
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258	263	268	273	
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Lys Arg Ser Val Val Lys His Ile Gly Asp Leu Leu Gln His Arg Gln				
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Val Gly Asn Asn Ser Leu Gly Leu Pro Gln Gly Lys Arg Pro Ala Ser				
338	343	348	353	
cct gcc ctt ctc ttg cca ccc tgc atg ttg aag tcc ccg aag cgg atc				1221
Pro Ala Leu Leu Leu Pro Pro Cys Met Leu Lys Ser Pro Lys Arg Ile				
354	359	364	369	
tgc cct gta ccc cct gtc tcc act gtc act gga gat gag aac att tct				1269
Cys Pro Val Pro Pro Val Ser Thr Val Thr Gly Asp Glu Asn Ile Ser				
370	375	380	385	
gat agt gaa ata gaa cag tat ttg cgt acc cct cag gaa gtt agg gac				1317
Asp Ser Glu Ile Glu Gln Tyr Leu Arg Thr Pro Gln Glu Val Arg Asp				
386	391	396	401	

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Met  
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Ser Gly Met Glu Ala Thr Val Thr Ile Pro Ile Trp Gln Asn Lys Pro  
2 7 12 17

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His Gly Ala Ala Arg Ser Val Val Arg Arg Ile Gly Thr Asn Leu Pro  
18 23 28 33

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Asp Asn Gly Phe Pro Thr Gly Asp His Glu Leu Phe Thr Thr Phe Ser	
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Trp Asp Asp Gln Lys Val Arg Arg Val Phe Val Arg Lys Val Tyr Thr	
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Ile Leu Leu Ile Gln Leu Leu Val Thr Leu Ala Val Val Ala Leu Phe	
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Thr Phe Cys Asp Pro Val Lys Asp Tyr Val Gln Ala Asn Pro Gly Trp	
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Tyr Trp Ala Ser Tyr Ala Val Phe Phe Ala Thr Tyr Leu Thr Leu Ala	
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Cys Cys Ser Gly Pro Arg Arg His Phe Pro Trp Asn Leu Ile Leu Leu	
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Val Cys Leu Ser Val Thr Val Phe Ser Phe Gln Thr Lys Phe Asp Phe	
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Met Gly Leu Leu Ala Phe Leu  
1 5

aag acc cag ttc gtg ctg cac ctg ctg gtc ggc ttt gtc ttc gtg gtg 279  
Lys Thr Gln Phe Val Leu His Leu Leu Val Gly Phe Val Phe Val Val  
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Ser Gly Leu Val Ile Asn Phe Val Gln Leu Cys Thr Leu Ala Leu Trp  
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Pro Val Ser Lys Gln Leu Tyr Arg Arg Leu Asn Cys Arg Leu Ala Tyr  
40 45 50 55

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Glu Cys Thr Leu Phe Thr Asp Gln Ala Thr Val Glu Arg Phe Gly Lys  
72 77 82 87

gag cac gca gtc atc atc ctc aac cac aac ttc gag atc gac ttc ctc 519  
Glu His Ala Val Ile Ile Leu Asn His Asn Phe Glu Ile Asp Phe Leu  
88 93 98 103

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Cys Gly Trp Thr Met Cys Glu Arg Phe Gly Val Leu Gly Ser Ser Lys  
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Val Leu Ala Lys Lys Glu Leu Leu Tyr Val Pro Leu Ile Gly Trp Thr  
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168 173 178 183

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Phe Arg Gly Asn Lys Asn Pro Ser Leu Leu Gly Ile Leu Tyr Gly Lys	
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Pro Leu Asp Glu Lys Glu Ala Ala Gln Trp Leu His Lys Leu Tyr Gln	
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Glu Lys Asp Ala Leu Gln Glu Ile Tyr Asn Gln Lys Gly Met Phe Pro	
280 285 290 295	
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Gly Glu Gln Phe Lys Pro Ala Arg Arg Pro Trp Thr Leu Leu Asn Phe	
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Leu Ser Trp Ala Thr Ile Leu Leu Ser Pro Leu Phe Ser Phe Val Leu	
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Gly Val Phe Ala Ser Gly Ser Pro Leu Leu Ile Leu Thr Phe Leu Gly	
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Phe Val Gly Ala Gly Asn Gly His Cys Arg *	
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Tyr Arg Arg Cys Trp Leu Val Phe Arg Lys Ser Ser Ser Lys Gly Pro  
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72 77 82 87  
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88 93 98 103  
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Thr Asp Arg Phe Asn Val Phe Leu Leu Pro Cys Pro Asn Leu Asp Val	
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 1 5 10

gct ctg gag gta ggc aca ggt ttt acc cct ctt tct gga gcc cgt gct 96  
 Ala Leu Glu Val Gly Thr Gly Phe Thr Pro Leu Ser Gly Ala Arg Ala  
 17 22 27 32

aac ttc ttc cat gaa gct tct tgt gat tac acc agc cca aca tgc gat 144  
 Asn Phe Phe His Glu Ala Ser Cys Asp Tyr Thr Ser Pro Thr Cys Asp  
 33 38 43 48

atg gtc aca gca tgg gat ggt ggt cag gac cct ttg atg gtt gag gag 192  
 Met Val Thr Ala Trp Asp Gly Gly Gln Asp Pro Leu Met Val Glu Glu  
 49 54 59 64

atg aag acc cag aaa ggc aag ggg ttt ggc cta ggg agc ctg gca att 240  
 Met Lys Thr Gln Lys Gly Lys Gly Phe Gly Leu Gly Ser Leu Ala Ile  
 65 70 75 80

gat tgg tcc cca gcc aga agc agt gaa gct tct cat gac agc cct ggg 288  
 Asp Trp Ser Pro Ala Arg Ser Ser Glu Ala Ser His Asp Ser Pro Gly  
 81 86 91 96

gat gag atg ggt aga tgg gag ctg ggt agc agc aca ggg tgt tgc ctt 336  
 Asp Glu Met Gly Arg Trp Glu Leu Gly Ser Ser Thr Gly Cys Cys Leu

97	102	107	112	
tgg cag tat gat cgc cac aca cac cac atc tat gtt cca gcc agt ggg				384
Trp Gln Tyr Asp Arg His Thr His His Ile Tyr Val Pro Ala Ser Gly				
113	118	123	128	
aag ggg gag ggg aaa ggg agg gga ggg cat gct tct ctc ttt cag ggc				432
Lys Gly Glu Gly Lys Gly Arg Gly Gly His Ala Ser Leu Phe Gln Gly				
129	134	139	144	
atg acc cag aag ctg tac aca tca gtg tac aca ttg cat ggc cac act				480
Met Thr Gln Lys Leu Tyr Thr Ser Val Tyr Thr Leu His Gly His Thr				
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cag ctg caa gtt aac agt ggt tct gac ggt gag tgc agt gcc aat gat				528
Gln Leu Gln Val Asn Ser Gly Ser Asp Gly Glu Cys Ser Ala Asn Asp				
161	166	171	176	
gga gat ggt ggt ggt gct ggt gtt gac cat aag atg gca gtt atg gtg				576
Gly Asp Gly Gly Gly Ala Gly Val Asp His Lys Met Ala Val Met Val				
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Val Val Val Val Thr Leu Leu Val Met Met Thr Tyr Asp Gly Trp Asp				
193	198	203	208	
gtc tgt gtg gtc aca gag tac ctg tgg gag ggc aat tct gac ccc aag				672
Val Cys Val Val Thr Glu Tyr Leu Trp Glu Gly Asn Ser Asp Pro Lys				
209	214	219	224	
gta gga agc agt gat ccg gta att cca ggc acc aag gca gat aaa aag				720
Val Gly Ser Ser Asp Pro Val Ile Pro Gly Thr Lys Ala Asp Lys Lys				
225	230	235	240	
acc aag atg ggg ccc atg agt gag gag gac aag aga gaa agg aga agt				768
Thr Lys Met Gly Pro Met Ser Glu Glu Asp Lys Arg Glu Arg Arg Ser				
241	246	251	256	
ttg ggt gta aat ccc aga gat tgt tca tca ttg gat gac agt tct cca				816
Leu Gly Val Asn Pro Arg Asp Cys Ser Ser Leu Asp Asp Ser Ser Pro				
257	262	267	272	
tca ggg tct gca gtc ctc tac cct gga ctt gct gca tcc tgg agc ccc				864
Ser Gly Ser Ala Val Leu Tyr Pro Gly Leu Ala Ala Ser Trp Ser Pro				
273	278	283	288	
cag cag tca ggt acc ggc tct cag aac tgc ctg cat ccc att ggc ctg				912
Gln Gln Ser Gly Thr Gly Ser Gln Asn Cys Leu His Pro Ile Gly Leu				
289	294	299	304	
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Ser Cys Cys Leu Pro Gly Leu Leu Ala Gly Leu Ile Ser Pro Cys Ser				
305	310	315	320	
tcc gac ccc aca aag ctc agt tac tgc gtc att gct act tac cag ggg				1008
Ser Asp Pro Thr Lys Leu Ser Tyr Cys Val Ile Ala Thr Tyr Gln Gly				
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Glu Lys Gln Arg Leu Ser Thr Ala Ser Gly Pro Gln Gly Arg Val Phe	
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Pro Pro Gln Lys Leu Leu Pro Leu Glu Met Gln Glu Arg Lys Pro Ser	
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Gly Pro Arg Arg Asp Arg Met Ile Arg Asp Ser Met Leu Asp Val Lys	
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Thr Gln Lys Cys Phe Arg Ile Arg Leu Phe Leu Leu Asn Asp Pro Gln	
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Leu Val Gly Thr Asp Ala Thr Leu Cys Cys Ser Phe Ser Pro Glu Pro	
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Gly Phe Ser Leu Ala Gln Leu Asn Leu Ile Trp Gln Leu Thr Asp Thr	
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Lys Gln Leu Val His Ser Phe Ala Glu Gly Gln Asp Gln Gly Ser Ala	
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Tyr Ala Asn Arg Thr Ala Leu Phe Pro Asp Leu Leu Ala Gln Gly Asn	
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Ala Ser Leu Arg Leu Gln Arg Val Arg Val Ala Asp Glu Gly Ser Phe	
497 502 507 512	
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Thr Cys Phe Val Ser Ile Arg Asp Phe Gly Ser Ala Ala Val Ser Leu	
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Gln Val Ala Ala Pro Tyr Ser Lys Pro Ser Met Thr Leu Glu Pro Asn	
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Lys Asp Leu Arg Pro Gly Asp Thr Val Thr Ile Thr Cys Ser Ser Tyr	
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ttg ttt gat gtg cac agc atc ctg cgg gtg gtg ctg ggt gca aat ggc Leu Phe Asp Val His Ser Ile Leu Arg Val Val Leu Gly Ala Asn Gly 593 598 603 608	1824
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ctc aac ctc atc tgg cag ctg aca gac acc aaa cag ctg gtg cac agt Leu Asn Leu Ile Trp Gln Leu Thr Asp Thr Lys Gln Leu Val His Ser 673 678 683 688	2064
ttc acc gaa ggc cgg gac cag ggc agc gcc tat gcc aac cgc acg gcc Phe Thr Glu Gly Arg Asp Gln Gly Ser Ala Tyr Ala Asn Arg Thr Ala 689 694 699 704	2112
ctc ttc ccg gac ctg ctg gca caa ggc aat gca tcc ctg agg ctg cag Leu Phe Pro Asp Leu Leu Ala Gln Gly Asn Ala Ser Leu Arg Leu Gln 705 710 715 720	2160
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785 790 795 800

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Arg Asn Pro Val Leu Gln Gln Asp Ala His Gly Ser Val Thr Ile Thr  
833 838 843 848

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849 854 859 864

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865 870 875 880

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897 902 907 912

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913 918 923 928

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Val Glu Met Pro Phe Trp Arg Ile Cys Asp Val Asp Arg Asp Phe Ile  
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gac aca aca agc cag cta acc cct aac gaa cgt gtt gat tca ttc att 2976  
Asp Thr Thr Ser Gln Leu Thr Pro Asn Glu Arg Val Asp Ser Phe Ile  
977 982 987 992

cat tcc atc agt tac tcc aac atg tgg gac tgc atg gtt gtg aaa aca 3024  
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993 998 1003 1008

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1014

1019

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                                         Met Glu Asp Leu Leu Asp
                                         1

ttg gac gag gag ctt cgc tac agc ttg gct acc tcc agg gcc aag atg      161
Leu Asp Glu Glu Leu Arg Tyr Ser Leu Ala Thr Ser Arg Ala Lys Met
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Gly Arg Arg Ala Gln Gln Glu Ser Ala Gln Ala Glu Asn His Leu Asn
  23                28                33                38

ggc aag aat tcc tct ttg act ctg act gga gag act tcc tct gct aaa      257
Gly Lys Asn Ser Ser Leu Thr Leu Thr Gly Glu Thr Ser Ser Ala Lys
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tta cct cgc tgc cga cag gga ggc tgg gca ggt gat tcc gtg aag gct      305
Leu Pro Arg Cys Arg Gln Gly Gly Trp Ala Gly Asp Ser Val Lys Ala
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tcg aag ttt agg agg aag gct tct gaa gaa ata gaa gat ttc cgc ctc      353
Ser Lys Phe Arg Arg Lys Ala Ser Glu Glu Ile Glu Asp Phe Arg Leu
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aga cca cag agc ctg aat gga tca gat tat gga gga gat att cct atc      401
Arg Pro Gln Ser Leu Asn Gly Ser Asp Tyr Gly Gly Asp Ile Pro Ile
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Ile Pro Asp Leu Glu Glu Val Gln Glu Glu Asp Phe Val Leu Gln Val
 103                108                113                118

gca gcc cct ccc agc atc cag ata aag cgg gtg atg acc tac cgt gac      497
Ala Ala Pro Pro Ser Ile Gln Ile Lys Arg Val Met Thr Tyr Arg Asp
 119                124                129                134

ctg gac aat gac ctc atg aag tac tca gcc att cag aca ctg gat ggg      545
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Val Arg Glu Arg Asn Pro Ser Trp Gln Asp Asp Val Gly Trp Asp Trp	
167 172 177 182	
gac cat ctg ttc act gag gtg tcc tca gag gtc ctc act gag tgg gac	689
Asp His Leu Phe Thr Glu Val Ser Ser Glu Val Leu Thr Glu Trp Asp	
183 188 193 198	
cca ctg cag acg gag aag gag gac cct gcg ggg cag gcc agg cac acc	737
Pro Leu Gln Thr Glu Lys Glu Asp Pro Ala Gly Gln Ala Arg His Thr	
199 204 209 214	
tga gccc gtcacccatg ctctagacat gaagaaatgc aatgagctta aagctaaaga	794
* 215	
agcttgtaag cagctccgaa tttttacctg gaatattttg taataaaaaat atttatattc	854
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agcttgaggt ctggcgctcc gcgtcctgcg gtgccctggg gtctcccgag gaccttgtag	180
cgcgcgggtt tccttgggct ggctttggac gacgctttcg ccttctgct gcctaggatc	240
cgccgac atg aat ccc atc gta gtg gtc cac gcc gcc gga gcc ggt ccc	289
Met Asn Pro Ile Val Val Val His Gly Gly Gly Ala Gly Pro	
1 5 10	
atc tcc aag gat cgg aag gag cga gtg cac cag gcc atg gtc aga gcc	337
Ile Ser Lys Asp Arg Lys Glu Arg Val His Gln Gly Met Val Arg Ala	
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2535





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cgc ggc tgg gac tac gcg cac tgc ctg ccc tac ttc cgc aag gcg cag	150
Arg Gly Trp Asp Tyr Ala His Cys Leu Pro Tyr Phe Arg Lys Ala Gln	
20 25 30 35	
ggc cac gag ctg ggc gcc agc cgg tac cgg ggc gcc gat ggc ccg ctg	198
Gly His Glu Leu Gly Ala Ser Arg Tyr Arg Gly Ala Asp Gly Pro Leu	
36 41 46 51	
cgg gtg tcc cgg ggc aag acc aac cac ccg ctg cac tgc gca ttc ctg	246
Arg Val Ser Arg Gly Lys Thr Asn His Pro Leu His Cys Ala Phe Leu	
52 57 62 67	
gag gcc acg cag cag gcc ggc tac ccg ctc acc gag gac atg aat ggc	294
Glu Ala Thr Gln Gln Ala Gly Tyr Pro Leu Thr Glu Asp Met Asn Gly	
68 73 78 83	
ttc cag cag gag ggc ttc ggc tgg atg gac atg acc atc cat gaa ggc	342
Phe Gln Gln Glu Gly Phe Gly Trp Met Asp Met Thr Ile His Glu Gly	
84 89 94 99	
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Lys Arg Trp Ser Ala Ala Cys Ala Tyr Leu His Pro Ala Leu Ser Arg	
100 105 110 115	
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Thr Asn Leu Lys Ala Glu Ala Glu Thr Leu Val Ser Arg Val Leu Phe	
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Glu Gly Thr Arg Ala Val Gly Val Glu Tyr Val Lys Asn Gly Gln Ser	
132 137 142 147	
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His Arg Ala Tyr Ala Ser Lys Glu Val Ile Leu Ser Gly Gly Ala Ile	
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Asn Ser Pro Gln Leu Leu Met Leu Ser Gly Ile Gly Asn Ala Asp Asp	
164 169 174 179	
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Gln Asn Leu Gln Asp His Leu Glu Ile Tyr Ile Gln Gln Ala Cys Thr	
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Arg Pro Ile Thr Leu His Ser Ala Gln Lys Pro Leu Arg Lys Val Cys	
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Ile Gly Leu Glu Trp Leu Trp Lys Phe Thr Gly Glu Gly Ala Thr Ala	
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His Leu Glu Thr Gly Gly Phe Ile Arg Ser Gln Pro Gly Val Pro His	
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Pro Asp Ile Gln Phe His Phe Leu Pro Ser Gln Val Ile Asp His Gly	
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Lys Gly Gln Pro Ala Leu Trp Asp Lys Asp Val Pro Val Tyr Lys Pro	
436 441 446 451	

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Cys Pro Cys Gly Phe Trp Gly Ser Ser Lys Thr Met Asn Leu Cys Ser  
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Ser Asp Asn Asn Asn Thr Ser Ile Thr Thr Pro Thr Leu Ser Pro Ser  
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Gln Gln Pro Leu Pro Thr Glu Leu Asn Val Thr Ser Pro Ser Lys Glu  
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Glu Tyr Ser Gln Ser Glu Asn Glu Ala Ser Pro Val Lys Arg Pro Arg  
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Leu Leu Glu Asn Thr Glu Arg Ser Glu Glu Thr Ser Arg Ser Lys Gln  
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Lys Ser Arg Arg Arg Cys Phe Gln Cys Gln Thr Lys Leu Glu Leu Val  
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His Arg Leu Pro Glu Gln His Asp Cys Thr Phe Asp His Met Gly Arg  
162 167 172 177  
  
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 Ala Ala Ala Ala Pro Thr Ala Thr Val Ser Glu Lys Glu Pro Phe Gly  
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 Lys Leu Gln Leu Ser Ser Arg Asp Pro Pro Gly Ser Leu Ser Ala Lys  
 28 33 38 43  
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 Lys Val Arg Thr Glu Glu Lys Lys Ala Pro Arg Arg Val Asn Gly Glu  
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 Gly Gly Ser Gly Gly Asn Ser Arg Gln Leu Gln Pro Pro Ala Ala Pro  
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 Ser Pro Gln Ser Tyr Gly Ser Pro Ala Ser Trp Ser Phe Ala Pro Leu  
 76 81 86 91  
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 Ser Ala Ala Pro Ser Pro Ser Ser Ser Arg Ser Ser Phe Ser Phe Ser  
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 Ala Gly Thr Ala Val Pro Ser Ser Ala Ser Ala Ser Leu Ser Gln Pro  
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 Val Pro Arg Lys Leu Leu Val Pro Pro Thr Leu Leu His Ala Gln Pro  
 124 129 134 139

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His His Leu Leu Leu Pro Ala Ala Ala Ala Ala Ala Ser Ala Asn Ala	
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Lys Ser Arg Arg Pro Lys Glu Lys Arg Glu Lys Glu Arg Arg Arg His	
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Gly Leu Gly Gly Ala Arg Glu Ala Gly Gly Ala Ser Arg Glu Glu Asn	
172 177 182 187	
ggg gag gtg aag ccg ctg ccc cga gca aat gat aaa acc agg agc ttt	628
Gly Glu Val Lys Pro Leu Pro Arg Ala Asn Asp Lys Thr Arg Ser Phe	
188 193 198 203	
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Asp Asp Phe Ser Pro Asp Gln Ala Ala Ala Glu Cys Leu Ser Ile Arg	
204 209 214 219	
aaa agg cga att ctt aag ggt tct tgt cag aca ggt tac ctc cga aaa	724
Lys Arg Arg Ile Leu Lys Gly Ser Cys Gln Thr Gly Tyr Leu Arg Lys	
220 225 230 235	
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Ala Leu Phe Ser Asp Thr Val Thr Leu Gly Ile Lys Ala Ser Thr Tyr	
236 241 246 251	
gga ttt tgg gga gcc atg att cag tcc ata gtg aag gcc ttg gca gag	820
Gly Phe Trp Gly Gly Met Ile Gln Ser Ile Val Lys Gly Leu Ala Glu	
252 257 262 267	
acc ttc aac ttc tgg ata cat att tgg gaa ctg aat gac ttg cag tat	868
Thr Phe Asn Phe Trp Ile His Ile Trp Glu Leu Asn Asp Leu Gln Tyr	
268 273 278 283	
att tca gcc ctt ttt gcc tgc tca gaa gag atg ccc gat tat cat tta	916
Ile Ser Ala Leu Phe Ala Cys Ser Glu Glu Met Pro Asp Tyr His Leu	
284 289 294 299	
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Glu Lys Gln Leu Ala Asp Lys Ile Lys Asp Lys Ile Lys Glu Arg Asp	
300 305 310 315	
aaa gaa aaa gaa aga gaa aaa aag aaa cat aaa gta atg aat gag atc	1012
Lys Glu Lys Glu Arg Glu Lys Lys Lys His Lys Val Met Asn Glu Ile	
316 321 326 331	
aag aaa gag aat gga gaa gta aag att ttg ctg aaa agt ggg aag gag	1060
Lys Lys Glu Asn Gly Glu Val Lys Ile Leu Leu Lys Ser Gly Lys Glu	
332 337 342 347	
aaa cca aaa aca aat ata gaa gac tta caa att aaa aag gta aag/aag	1108
Lys Pro Lys Thr Asn Ile Glu Asp Leu Gln Ile Lys Lys Val Lys Lys	
348 353 358 363	

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Lys Lys Lys Lys Lys His Lys Glu Asn Glu Lys Arg Lys Arg Pro Lys	
364 369 374 379	
atg tat agc aaa tct att cag acc atc tgc tca gga ttg cta act gat	1204
Met Tyr Ser Lys Ser Ile Gln Thr Ile Cys Ser Gly Leu Leu Thr Asp	
380 385 390 395	
gtt gaa gat caa gca gcc aaa ggc atc cta aat gat aac ata aaa gat	1252
Val Glu Asp Gln Ala Ala Lys Gly Ile Leu Asn Asp Asn Ile Lys Asp	
396 401 406 411	
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Tyr Val Gly Lys Asn Leu Asp Thr Lys Asn Tyr Asp Ser Lys Ile Pro	
412 417 422 427	
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Glu Asn Ser Glu Phe Pro Phe Val Ser Leu Lys Glu Pro Arg Val Gln	
428 433 438 443	
aat aac ctc aaa agg ttg gac act ttg gaa ttt aaa caa ctc att cat	1396
Asn Asn Leu Lys Arg Leu Asp Thr Leu Glu Phe Lys Gln Leu Ile His	
444 449 454 459	
ata gag cac cag cct aat gga ggt gca tgc gtt atc cat gcc tac agt	1444
Ile Glu His Gln Pro Asn Gly Gly Ala Ser Val Ile His Ala Tyr Ser	
460 465 470 475	
aac gaa ctc tcc cac ctg tct cct atg gag atg gag agg ttt gca gaa	1492
Asn Glu Leu Ser His Leu Ser Pro Met Glu Met Glu Arg Phe Ala Glu	
476 481 486 491	
gag ttt gtg ggt cta gtg ttc agt gaa aat gaa aac tct gca gct ttc	1540
Glu Phe Val Gly Leu Val Phe Ser Glu Asn Glu Asn Ser Ala Ala Phe	
492 497 502 507	
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Tyr Val Met Gly Ile Val His Gly Ala Ala Thr Tyr Leu Pro Asp Phe	
508 513 518 523	
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Leu Asp Tyr Phe Ser Phe Asn Phe Pro Asn Ser Pro Val Lys Met Glu	
524 529 534 539	
ata ttg gga aag aaa gat ata gag aca acg act atg tcc aat ttt cat	1684
Ile Leu Gly Lys Lys Asp Ile Glu Thr Thr Thr Met Ser Asn Phe His	
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Ala Gln Val Lys Arg Thr Tyr Ser His Gly Thr Tyr Arg Ala Gly Pro	
556 561 566 571	
atg aga caa ata agc ttg gtg gga gca gtt gat gaa gaa gta gga gat	1780
Met Arg Gln Ile Ser Leu Val Gly Ala Val Asp Glu Glu Val Gly Asp	
572 577 582 587	
tat ttc cct gag ttc ctt gac atg ttg gaa gag tca cca ttt tta aaa	1828

Tyr	Phe	Pro	Glu	Phe	Leu	Asp	Met	Leu	Glu	Glu	Ser	Pro	Phe	Leu	Lys	
588					593					598					603	
tgt	aca	ctg	cca	tgg	ggg	acg	cta	tct	agt	cta	aaa	tta	cag	agt	cga	1876
Cys	Thr	Leu	Pro	Trp	Gly	Thr	Leu	Ser	Ser	Leu	Lys	Leu	Gln	Ser	Arg	
604					609					614					619	
aaa	gat	agt	gat	gat	ggg	ccc	atc	atg	tgg	gtt	cgt	cca	gga	gaa	caa	1924
Lys	Asp	Ser	Asp	Asp	Gly	Pro	Ile	Met	Trp	Val	Arg	Pro	Gly	Glu	Gln	
620					625					630					635	
atg	atc	cct	gtg	gct	gat	atg	cca	aag	tca	cct	ttc	aaa	agg	aaa	aga	1972
Met	Ile	Pro	Val	Ala	Asp	Met	Pro	Lys	Ser	Pro	Phe	Lys	Arg	Lys	Arg	
636					641					646					651	
act	acc	aat	gaa	ata	aaa	aat	ctt	cag	tac	cta	cct	cga	aca	agt	gag	2020
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ccc	cgt	gag	atg	ctc	ttt	gaa	gac	agg	aca	aga	gct	cat	gca	gat	cat	2068
Pro	Arg	Glu	Met	Leu	Phe	Glu	Asp	Arg	Thr	Arg	Ala	His	Ala	Asp	His	
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Ile	Gly	Gln	Gly	Phe	Glu	Arg	Gln	Thr	Thr	Ala	Ala	Val	Gly	Val	Leu	
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aag	gct	gtg	cac	tgt	gga	gag	tgg	cct	gat	caa	ccc	cgt	ata	acc	aaa	2164
Lys	Ala	Val	His	Cys	Gly	Glu	Trp	Pro	Asp	Gln	Pro	Arg	Ile	Thr	Lys	
700					705					710					715	
gat	gta	att	tgt	ttt	cat	gct	gaa	gat	ttc	tta	gaa	gta	gtt	caa	cga	2212
Asp	Val	Ile	Cys	Phe	His	Ala	Glu	Asp	Phe	Leu	Glu	Val	Val	Gln	Arg	
716					721					726					731	
atg	cag	tta	gat	tta	cat	gaa	cct	cca	ctg	tcc	cag	tgt	gtc	caa	tgg	2260
Met	Gln	Leu	Asp	Leu	His	Glu	Pro	Pro	Leu	Ser	Gln	Cys	Val	Gln	Trp	
732					737					742					747	
gtt	gat	gat	gca	aaa	ctg	aat	caa	ctg	agg	agg	gaa	ggc	att	cgc	tat	2308
Val	Asp	Asp	Ala	Lys	Leu	Asn	Gln	Leu	Arg	Arg	Glu	Gly	Ile	Arg	Tyr	
748					753					758					763	
gcc	agg	att	cag	cta	tat	gat	aat	gac	att	tat	ttt	att	cca	agg	aat	2356
Ala	Arg	Ile	Gln	Leu	Tyr	Asp	Asn	Asp	Ile	Tyr	Phe	Ile	Pro	Arg	Asn	
764					769					774					779	
gtt	gtt	cat	cag	ttc	aag	aca	gtt	tca	gct	gta	tgc	agt	tta	gca	tgg	2404
Val	Val	His	Gln	Phe	Lys	Thr	Val	Ser	Ala	Val	Cys	Ser	Leu	Ala	Trp	
780					785					790					795	
cat	att	cgg	ctc	aaa	tta	tat	cac	tca	gag	gag	gac	act	tct	cag	aat	2452
His	Ile	Arg	Leu	Lys	Leu	Tyr	His	Ser	Glu	Glu	Asp	Thr	Ser	Gln	Asn	
796					801					806					811	
aca	gct	act	cat	gaa	aca	ggc	aca	tca	tca	gat	tcc	aca	tca	tct	gtt	2500
Thr	Ala	Thr	His	Glu	Thr	Gly	Thr	Ser	Ser	Asp	Ser	Thr	Ser	Ser	Val	

812	817	822	827	
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Leu Gly Pro His Thr Asp Asn Met Ile Cys Ala Val Ser Lys Ala Ser				
828	833	838	843	
ttg gat tct gtt ttt tca gat aaa ctt cat tct aaa tat gaa tta cag				2596
Leu Asp Ser Val Phe Ser Asp Lys Leu His Ser Lys Tyr Glu Leu Gln				
844	849	854	859	
cag att aaa cat gaa cct att gca tct gta aga atc aag gaa gaa cct				2644
Gln Ile Lys His Glu Pro Ile Ala Ser Val Arg Ile Lys Glu Glu Pro				
860	865	870	875	
gtg aat gtt aat att cct gaa aag act aca gca ctg aat aat atg gat				2692
Val Asn Val Asn Ile Pro Glu Lys Thr Thr Ala Leu Asn Asn Met Asp				
876	881	886	891	
ggc aag aat gtt aaa gca aaa ttg gat cat gtt caa ttt gca gaa ttt				2740
Gly Lys Asn Val Lys Ala Lys Leu Asp His Val Gln Phe Ala Glu Phe				
892	897	902	907	
aag att gac atg gat tct aaa ttt gaa aat agc aac aaa gat tta aag				2788
Lys Ile Asp Met Asp Ser Lys Phe Glu Asn Ser Asn Lys Asp Leu Lys				
908	913	918	923	
gaa gaa ttg tgc cct gga aat cta agt cta gtt gat aca agg caa cac				2836
Glu Glu Leu Cys Pro Gly Asn Leu Ser Leu Val Asp Thr Arg Gln His				
924	929	934	939	
agt tca gca cat tca aat caa gat aaa aaa gac gat gac att ttg tgc				2884
Ser Ser Ala His Ser Asn Gln Asp Lys Lys Asp Asp Asp Ile Leu Cys				
940	945	950	955	
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Lys	Leu	Gln	Leu	Ser	Ser	Arg	Asp	Pro	Pro	Gly	Ser	Leu	Ser	Ala	Lys		
28					33					38					43		
aag	gtc	cgg	act	gag	gag	aag	aag	gca	ccg	cgg	aga	gtg	aac	gga	gaa	196	
Lys	Val	Arg	Thr	Glu	Glu	Lys	Lys	Ala	Pro	Arg	Arg	Val	Asn	Gly	Glu		
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Gly	Gly	Ser	Gly	Gly	Asn	Ser	Arg	Gln	Leu	Gln	Pro	Pro	Ala	Ala	Pro		
60					65					70					75		
tcg	cct	cag	agc	tat	ggc	agc	ccc	gcg	tct	tgg	agc	ttt	gcc	cct	ctg	292	
Ser	Pro	Gln	Ser	Tyr	Gly	Ser	Pro	Ala	Ser	Trp	Ser	Phe	Ala	Pro	Leu		
76					81					86					91		
tct	gct	gct	ccc	tcc	ccg	tcc	tct	tct	cgg	agc	agt	ttc	tct	ttc	tcc	340	
Ser	Ala	Ala	Pro	Ser	Pro	Ser	Ser	Ser	Arg	Ser	Ser	Phe	Ser	Phe	Ser		
92					97					102					107		
gct	ggc	acg	gcc	gtt	ccc	tcc	tca	gcc	tcc	gct	tcc	ttg	tct	cag	ccg	388	
Ala	Gly	Thr	Ala	Val	Pro	Ser	Ser	Ala	Ser	Ala	Ser	Leu	Ser	Gln	Pro		
108					113					118					123		
gtg	ccg	cgc	aaa	ctg	ctg	gtc	cct	cct	acg	ctg	ctg	cac	gct	cag	cct	436	
Val	Pro	Arg	Lys	Leu	Leu	Val	Pro	Pro	Thr	Leu	Leu	His	Ala	Gln	Pro		
124					129					134					139		
cac	cat	ctc	ctc	ctg	ccc	gcc	gcc	gcc	gcc	gct	gcc	tcg	gct	aac	gcc	484	
His	His	Leu	Leu	Leu	Pro	Ala	Ala	Ala	Ala	Ala	Ala	Ser	Ala	Asn	Ala		
140					145					150					155		
aag	tcg	cgc	aga	cct	aag	gag	aag	cgg	gag	aag	gag	agg	agg	agg	cac	532	
Lys	Ser	Arg	Arg	Pro	Lys	Glu	Lys	Arg	Glu	Lys	Glu	Arg	Arg	Arg	His		
156					161					166					171		
ggg	ctc	ggg	ggg	ggc	cga	gag	gcc	ggc	ggg	ggc	tcc	cgg	gag	gag	aac	580	
Gly	Leu	Gly	Gly	Ala	Arg	Glu	Ala	Gly	Gly	Ala	Ser	Arg	Glu	Glu	Asn		
172					177					182					187		
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Gly	Glu	Val	Lys	Pro	Leu	Pro	Arg	Asp	Lys	Ile	Lys	Asp	Lys	Ile	Lys		
188					193					198					203		
gag	aga	gac	aaa	gaa	aaa	gaa	aga	gaa	aaa	aag	aaa	cat	aaa	gta	atg	676	
Glu	Arg	Asp	Lys	Glu	Lys	Glu	Arg	Glu	Lys	Lys	Lys	His	Lys	Val	Met		
204					209					214					219		
aat	gag	atc	aag	aaa	gag	aat	gga	gaa	gta	aag	att	ttg	ctg	aaa	agt	724	
Asn	Glu	Ile	Lys	Lys	Glu	Asn	Gly	Glu	Val	Lys	Ile	Leu	Leu	Lys	Ser		
220					225					230					235		
ggg	aag	gag	aaa	cca	aaa	aca	aat	ata	gaa	gac	tta	caa	att	aaa	aag	772	
Gly	Lys	Glu	Lys	Pro	Lys	Thr	Asn	Ile	Glu	Asp	Leu	Gln	Ile	Lys	Lys		

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gta aag aag aaa aag aaa aag aaa cac aaa gag aat gaa aaa cgg aag				820
Val Lys Lys Lys Lys Lys Lys Lys His Lys Glu Asn Glu Lys Arg Lys				
252	257	262	267	
cgt ccg aaa atg tat agc aaa tct att cag acc atc tgc tca gga ttg				868
Arg Pro Lys Met Tyr Ser Lys Ser Ile Gln Thr Ile Cys Ser Gly Leu				
268	273	278	283	
cta act gat gtt gaa gat caa gca gcc aaa ggc atc cta aat gat aac				916
Leu Thr Asp Val Glu Asp Gln Ala Ala Lys Gly Ile Leu Asn Asp Asn				
284	289	294	299	
ata aaa gat tac gtt ggg aag aat ttg gat acc aag aac tat gat tcc				964
Ile Lys Asp Tyr Val Gly Lys Asn Leu Asp Thr Lys Asn Tyr Asp Ser				
300	305	310	315	
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Lys Ile Pro Glu Asn Ser Glu Phe Pro Phe Val Ser Leu Lys Glu Pro				
316	321	326	331	
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Arg Val Gln Asn Asn Leu Lys Arg Leu Asp Thr Leu Glu Phe Lys Gln				
332	337	342	347	
ctc att cat ata gag cac cag cct aat gga ggt gca tcg gtt atc cat				1108
Leu Ile His Ile Glu His Gln Pro Asn Gly Gly Ala Ser Val Ile His				
348	353	358	363	
gcc tac agt aac gaa ctc tcc cac ctg tct cct atg gag atg gag agg				1156
Ala Tyr Ser Asn Glu Leu Ser His Leu Ser Pro Met Glu Met Glu Arg				
364	369	374	379	
ttt gca gaa gag ttt gtg ggt cta gtg ttc agt gaa aat gaa aac tct				1204
Phe Ala Glu Glu Phe Val Gly Leu Val Phe Ser Glu Asn Glu Asn Ser				
380	385	390	395	
gca gct ttc tac gtg atg ggt att gtt cat ggg gca gct act tat tta				1252
Ala Ala Phe Tyr Val Met Gly Ile Val His Gly Ala Ala Thr Tyr Leu				
396	401	406	411	
cct gac ttt tta gac tat ttt tca ttt aat ttt ccc aat tca cca gtg				1300
Pro Asp Phe Leu Asp Tyr Phe Ser Phe Asn Phe Pro Asn Ser Pro Val				
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Gln Ser Arg Lys Asp Ser Asp Asp Gly Pro Ile Met Trp Val Arg Pro	
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Gly Glu Gln Met Ile Pro Val Ala Asp Met Pro Lys Ser Pro Phe Lys	
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Lys Ala Ser Leu Asp Ser Val Phe Ser Asp Lys Leu His Ser Lys Tyr	
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Tyr Ile Ile His Lys Tyr Pro Ser Leu Glu Leu Glu Arg Arg Gly Tyr	
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Leu Asn Asp Ile Ser Leu Gly Glu Pro Asp Leu Leu Ala Ala Gly Val	
116 121 126 131	
cag cgg gaa cag aat gag aga ttc aac gtg tat ctt atg cct aca cca	549
Gln Arg Glu Gln Asn Glu Arg Phe Asn Val Tyr Leu Met Pro Thr Pro	
132 137 142 147	
aac ctg gat att tat ggt gaa tgc aca atg cag atc act cat gaa aat	597
Asn Leu Asp Ile Tyr Gly Glu Cys Thr Met Gln Ile Thr His Glu Asn	
148 153 158 163	
atc tat ctc tgg gat atc cac aat gcc aag gtc aaa ctg gtg atg tgg	645
Ile Tyr Leu Trp Asp Ile His Asn Ala Lys Val Lys Leu Val Met Trp	
164 169 174 179	
cct ctc agc tca ctg agg aga tac ggt cgg gac tca acg tgg ttc acg	693
Pro Leu Ser Ser Leu Arg Arg Tyr Gly Arg Asp Ser Thr Trp Phe Thr	
180 185 190 195	
ttt gag tca gga aga atg tgt gac aca gga gaa gga cta ttc act ttt	741
Phe Glu Ser Gly Arg Met Cys Asp Thr Gly Glu Gly Leu Phe Thr Phe	
196 201 206 211	
caa aca agg gaa gga gaa atg atc tat cag aag gtt cat tct gcg aca	789
Gln Thr Arg Glu Gly Glu Met Ile Tyr Gln Lys Val His Ser Ala Thr	
212 217 222 227	
ctg gcc ata gct gag caa cat gaa aga tta atg cta gaa atg gaa cag	837
Leu Ala Ile Ala Glu Gln His Glu Arg Leu Met Leu Glu Met Glu Gln	
228 233 238 243	
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Leu Ser Met Leu Cys Arg Asn Gln Leu Ser Pro Val Asn Ile His Pro	
205 210 215 220	
agt tat gca cct tct tcc cca agc agt agc aac tca ggc tcc tac aaa	961
Ser Tyr Ala Pro Ser Ser Pro Ser Ser Ser Asn Ser Gly Ser Tyr Lys	
221 226 231 236	
gga agc gac tgt agc ccc atc atg agg cgt tct gga agg tac atg tct	1009
Gly Ser Asp Cys Ser Pro Ile Met Arg Arg Ser Gly Arg Tyr Met Ser	
237 242 247 252	
tgc ggt gaa aat cat ggt gtc aga ccc cca aac cca gag cag tat ttg	1057
Cys Gly Glu Asn His Gly Val Arg Pro Pro Asn Pro Glu Gln Tyr Leu	
253 258 263 268	
act cca ctg cag cag aaa gag gtg aca gtg aga cac ctc aaa acc aag	1105
Thr Pro Leu Gln Gln Lys Glu Val Thr Val Arg His Leu Lys Thr Lys	
269 274 279 284	
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Leu Lys Glu Ser Glu Arg Arg Leu His Glu Arg Glu Ser Glu Ile Val	
285 290 295 300	
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Glu Leu Lys Ser Gln Leu Ala Arg Met Arg Glu Asp Trp Ile Glu Glu	
301 306 311 316	
gag tgt cac cgg gta gag gcc cag ttg gca ctc aaa gaa gcc agg aaa	1249
Glu Cys His Arg Val Glu Ala Gln Leu Ala Leu Lys Glu Ala Arg Lys	
317 322 327 332	
gag att aaa cag ctc aaa cag gtc atc gaa acc atg cgg agc agc ttg	1297
Glu Ile Lys Gln Leu Lys Gln Val Ile Glu Thr Met Arg Ser Ser Leu	
333 338 343 348	
gct gat aaa gat aaa ggc att cag aaa tat ttt gtg gac ata aac atc	1345
Ala Asp Lys Asp Lys Gly Ile Gln Lys Tyr Phe Val Asp Ile Asn Ile	
349 354 359 364	
caa aac aag aag ctg gag tct ctc ctt cag agc atg gag atg gca cac	1393
Gln Asn Lys Lys Leu Glu Ser Leu Leu Gln Ser Met Glu Met Ala His	
365 370 375 380	
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Ser Gly Ser Leu Arg Asp Glu Leu Cys Leu Asp Phe Pro Cys Asp Ser	
381 386 391 396	
cca gag aag agc tta acc ctc aac ccc cct ctt gac aca atg gca gat	1489
Pro Glu Lys Ser Leu Thr Leu Asn Pro Pro Leu Asp Thr Met Ala Asp	
397 402 407 412	
ggg tta tct ctg gaa gag cag gtc acg ggg gaa ggg gct gac agg gag	1537
Gly Leu Ser Leu Glu Glu Gln Val Thr Gly Glu Gly Ala Asp Arg Glu	
413 418 423 428	
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Leu	Leu	Val	Gly	Asp	Ser	Ile	Ala	Asn	Ser	Thr	Asp	Leu	Phe	Asp	Glu	
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Ile	Val	Thr	Ala	Thr	Thr	Thr	Glu	Ser	Gly	Asp	Leu	Glu	Leu	Val	His	
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Ser	Thr	Pro	Gly	Ala	Asn	Val	Leu	Glu	Leu	Leu	Pro	Ile	Val	Met	Gly	
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Gln	Glu	Glu	Gly	Ser	Val	Val	Val	Glu	Arg	Ala	Val	Gln	Thr	Asp	Val	
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gtg	ccc	tac	agc	cca	gcc	atc	tca	gag	ctc	att	cag	agt	gtg	ctg	cag	1777
Val	Pro	Tyr	Ser	Pro	Ala	Ile	Ser	Glu	Leu	Ile	Gln	Ser	Val	Leu	Gln	
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aag	ctc	cag	gac	ccc	tgt	ccc	tcg	agc	ttg	gcg	tcc	cct	gat	gag	tct	1825
Lys	Leu	Gln	Asp	Pro	Cys	Pro	Ser	Ser	Leu	Ala	Ser	Pro	Asp	Glu	Ser	
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gaa	cca	gac	tcg	atg	gag	agc	ttc	cca	gag	tcc	ctc	tct	gcc	tta	gtg	1873
Glu	Pro	Asp	Ser	Met	Glu	Ser	Phe	Pro	Glu	Ser	Leu	Ser	Ala	Leu	Val	
525					530					535					540	
gtt	gat	tta	act	cca	aga	aat	cca	aac	tca	gcc	atc	ctt	ttg	tct	ccc	1921
Val	Asp	Leu	Thr	Pro	Arg	Asn	Pro	Asn	Ser	Ala	Ile	Leu	Leu	Ser	Pro	
541					546					551					556	
gtg	gag	acc	ccc	tac	gcc	aat	gtg	gat	gca	gaa	gtt	cat	gca	aac	cgc	1969
Val	Glu	Thr	Pro	Tyr	Ala	Asn	Val	Asp	Ala	Glu	Val	His	Ala	Asn	Arg	
557					562					567					572	
ctc	atg	aga	gag	ctg	gat	ttt	gca	gcc	tgc	gtg	gaa	gag	agg	ttg	gat	2017
Leu	Met	Arg	Glu	Leu	Asp	Phe	Ala	Ala	Cys	Val	Glu	Glu	Arg	Leu	Asp	
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ggt	gtc	atc	cca	ctg	gct	cgc	ggg	ggc	gtc	gtg	agg	cag	tac	tgg	agc	2065
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589					594					599					604	
agc	agc	ttc	ctg	gtg	gat	ctc	ctg	gct	gtg	gct	gcc	ccc	gtg	gtc	ccc	2113
Ser	Ser	Phe	Leu	Val	Asp	Leu	Leu	Ala	Val	Ala	Ala	Pro	Val	Val	Pro	
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Thr	Val	Leu	Trp	Ala	Phe	Ser	Thr	Gln	Arg	Gly	Gly	Thr	Asp	Pro	Val	
621					626					631					636	
tat	aac	atc	ggg	gcc	ttg	ctc	agg	ggc	tgt	tgc	gtg	gtt	gcc	ctg	cat	2209
Tyr	Asn	Ile	Gly	Ala	Leu	Leu	Arg	Gly	Cys	Cys	Val	Val	Ala	Leu	His	
637					642					647					652	
tcg	ctc	cgc	cgc	acc	gcc	ttc	cgt	atc	aaa	acc	taa	atag	aagttgttgt			2259
Ser	Leu	Arg	Arg	Thr	Ala	Phe	Arg	Ile	Lys	Thr	*					

653

658

663

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&lt;211&gt; 4223

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&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (188)..(2035)

&lt;400&gt; 857

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 aaaaggttgt aatgggagag ttgttcttac tgatgggggc agatatgatg ttcatttggg 180  
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 Met Arg Tyr Ala Val Tyr Trp Asp Glu Leu Ala Ser Glu Val  
 1 5 10

aga cga tgt acg tgg ttt tac aag ggg gac aaa gac aat aag tat gtt	277
Arg Arg Cys Thr Trp Phe Tyr Lys Gly Asp Lys Asp Asn Lys Tyr Val	
15 20 25 30	
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Pro Tyr Ser Glu Ser Phe Ser Gln Val Leu Glu Glu Thr Tyr Met Leu	
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Ala Val Thr Leu Asp Glu Trp Lys Lys Lys Leu Glu Ser Pro Asn Arg	
47 52 57 62	
gaa att att att tta cac aat cca aag ctt atg gtg cat tac cag cca	421
Glu Ile Ile Ile Leu His Asn Pro Lys Leu Met Val His Tyr Gln Pro	
63 68 73 78	
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Val Ala Gly Ser Asp Asp Trp Gly Ser Thr Pro Met Glu Gln Gly Arg	
79 84 89 94	
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Pro Arg Thr Val Lys Arg Gly Val Glu Asn Ile Ser Val Asp Ile His	
95 100 105 110	
tgt gga gaa cct tta caa ata gat cac ttg gtt ttt gta gtc cat ggg	565
Cys Gly Glu Pro Leu Gln Ile Asp His Leu Val Phe Val Val His Gly	
111 116 121 126	
att gga cca gct tgt gat ctc cgc ttt cga agc att gta cag tgt gtt	613
Ile Gly Pro Ala Cys Asp Leu Arg Phe Arg Ser Ile Val Gln Cys Val	
127 132 137 142	
aat gat ttt cgc agt gtt tcc ttg aac ttg cta cag aca cat ttt aag	661
Asn Asp Phe Arg Ser Val Ser Leu Asn Leu Leu Gln Thr His Phe Lys	
143 148 153 158	
aaa gcc caa gaa aat cag cag att ggg agg gta gaa ttt ctt cca gtc	709
Lys Ala Gln Glu Asn Gln Gln Ile Gly Arg Val Glu Phe Leu Pro Val	
159 164 169 174	
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Asn Trp His Ser Pro Leu His Ser Thr Gly Val Asp Val Asp Leu Gln	
175 180 185 190	
cga ata acc ctg ccc agc att aac cgc ctc agg cac ttc acc aat gac	805
Arg Ile Thr Leu Pro Ser Ile Asn Arg Leu Arg His Phe Thr Asn Asp	
191 196 201 206	
aca att ctg gat gtc ttc ttc tac aat agt ccc acc tac tgt cag act	853
Thr Ile Leu Asp Val Phe Phe Tyr Asn Ser Pro Thr Tyr Cys Gln Thr	
207 212 217 222	
att gtg gac aca gtt gct tct gaa atg aac cga ata tac aca ctt ttt	901
Ile Val Asp Thr Val Ala Ser Glu Met Asn Arg Ile Tyr Thr Leu Phe	
223 228 233 238	
cta cag agg aac cct gat ttc aaa ggg ggt gta tcc att gct ggt cat	949

Leu Gln Arg Asn Pro Asp Phe Lys Gly Gly Val Ser Ile Ala Gly His	
239 244 249 254	
agt tta ggt tcg ctt ata ttg ttt gat atc cta aca aat cag aaa gat	997
Ser Leu Gly Ser Leu Ile Leu Phe Asp Ile Leu Thr Asn Gln Lys Asp	
255 260 265 270	
tct ttg ggg gat att gac agt gaa aag ggt tcg cta aat att gta atg	1045
Ser Leu Gly Asp Ile Asp Ser Glu Lys Gly Ser Leu Asn Ile Val Met	
271 276 281 286	
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Asp Gln Gly Asp Thr Pro Thr Leu Glu Glu Asp Leu Lys Lys Leu Gln	
287 292 297 302	
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303 308 313 318	
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Ala Leu Ala Leu Cys Thr Asp Arg Asp Leu Gln Glu Ile Gly Ile Pro	
319 324 329 334	
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Leu Gly Pro Arg Lys Lys Ile Leu Asn Tyr Phe Ser Thr Arg Lys Asn	
335 340 345 350	
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Ser Met Gly Ile Lys Arg Pro Ala Pro Gln Pro Ala Ser Gly Ala Asn	
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Ile Pro Lys Glu Ser Glu Phe Cys Ser Ser Ser Asn Thr Arg Asn Gly	
367 372 377 382	
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Asp Tyr Leu Asp Val Gly Ile Gly Gln Val Ser Val Lys Tyr Pro Arg	
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Leu Ile Tyr Lys Pro Glu Ile Phe Phe Ala Phe Gly Ser Pro Ile Gly	
399 404 409 414	
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Met Phe Leu Thr Val Arg Gly Leu Lys Arg Ile Asp Pro Asn Tyr Arg	
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Phe Pro Thr Cys Lys Gly Phe Phe Asn Ile Tyr His Pro Phe Asp Pro	
431 436 441 446	
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Val Ala Tyr Arg Ile Glu Pro Met Val Val Pro Gly Val Glu Phe Glu	
447 452 457 462	
cca atg ctg atc cca cat cat aaa ggc agg aag cgg atg cac tta gaa	1621
Pro Met Leu Ile Pro His His Lys Gly Arg Lys Arg Met His Leu Glu	



463	468	473	478	
ctg aga gag ggc ttg	acc agg atg agt atg	gac ctt aag aac aac	ttg	1669
Leu Arg Glu Gly Leu	Thr Arg Met Ser Met	Asp Leu Lys Asn Asn	Leu	
479	484	489	494	
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Leu Gly Ser Leu Arg	Met Ala Trp Lys Ser	Phe Thr Arg Ala Pro	Tyr	
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cct gcc tta caa gct	tca gaa aca cca gaa	gaa act gaa gca gaa	cct	1765
Pro Ala Leu Gln Ala	Ser Glu Thr Pro Glu	Glu Thr Glu Ala Glu	Pro	
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527	532	537	542	
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Val Ala Val Lys Glu	Glu Val Leu Pro Ile	Asn Val Gly Met Leu	Asn	
543	548	553	558	
gga ggc caa cgc att	gac tat gtg cta cag	gag aag cct att gaa	agt	1909
Gly Gly Gln Arg Ile	Asp Tyr Val Leu Gln	Glu Lys Pro Ile Glu	Ser	
559	564	569	574	
ttt aat gag tat tta	ttt gct tta caa agc	cat cta tgc tac tgg	gag	1957
Phe Asn Glu Tyr Leu	Phe Ala Leu Gln Ser	His Leu Cys Tyr Trp	Glu	
575	580	585	590	
tct gaa gat aca gta	ttg ctc gtc ctc aaa	gag atc tac caa acc	cag	2005
Ser Glu Asp Thr Val	Leu Leu Val Leu Lys	Glu Ile Tyr Gln Thr	Gln	
591	596	601	606	
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Gly Ile Phe Leu Asp	Gln Pro Leu Gln *			
607	612			
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 <212> DNA  
 <213> Homo sapiens

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 <222> (292)..(1344)

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 tttatatatt tatatttaga gattotaaaa attgcatgat gtttgatatt attactactt 180  
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 gctcagggat ggagccctct ggcggaagcc atcagctatg gagataggca g atg att 297  
 Met Ile  
 1  
 aca gct ctt ttg agg aag ctt aag cag caa tcc agg gaa agt gtt gaa 345  
 Thr Ala Leu Leu Arg Lys Leu Lys Gln Gln Ser Arg Glu Ser Val Glu  
 3 8 13 18  
 gaa aaa cga cct cga tta tta aaa gcc ctg aaa gag cta ggt gac ttt 393  
 Glu Lys Arg Pro Arg Leu Leu Lys Ala Leu Lys Glu Leu Gly Asp Phe  
 19 24 29 34  
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 Tyr Leu Glu Leu His Trp Asp Phe Gln Ser Trp Val Pro Leu Leu Ser  
 35 40 45 50  
 cga att ctg cct tcc gat gca tgt aaa ata tac aaa caa ggt atc aat 489  
 Arg Ile Leu Pro Ser Asp Ala Cys Lys Ile Tyr Lys Gln Gly Ile Asn  
 51 56 61 66  
 atc agg ctt gac aca act ctc ata gac ttt act gac atg aag tgc caa 537  
 Ile Arg Leu Asp Thr Thr Leu Ile Asp Phe Thr Asp Met Lys Cys Gln  
 67 72 77 82  
 cga ggg gat cta agc ttc att ttc aat ggg gat gcg gcg ccc tct gaa 585  
 Arg Gly Asp Leu Ser Phe Ile Phe Asn Gly Asp Ala Ala Pro Ser Glu  
 83 88 93 98  
 tct ttt gta gta tta gac aat gaa caa aaa gtt tat cag cga ata cat 633  
 Ser Phe Val Val Leu Asp Asn Glu Gln Lys Val Tyr Gln Arg Ile His  
 99 104 109 114  
 cat gag gaa tca gag atg gaa aca gaa gaa gag gtg gat att tta atg 681  
 His Glu Glu Ser Glu Met Glu Thr Glu Glu Glu Val Asp Ile Leu Met  
 115 120 125 130  
 agc agt gat att tac tct gca act tta tca aca aaa tca att tct ttc 729  
 Ser Ser Asp Ile Tyr Ser Ala Thr Leu Ser Thr Lys Ser Ile Ser Phe

131	136	141	146	
acg cgt gcc cag aca gga tgg ctt ttt cgg gaa gat aaa aca gaa aga				777
Thr Arg Ala Gln Thr Gly Trp Leu Phe Arg Glu Asp Lys Thr Glu Arg				
147	152	157	162	
gta gga aac ttt ttg gca gac ttt tac ctg gtg aat gga ctt gtt tta				825
Val Gly Asn Phe Leu Ala Asp Phe Tyr Leu Val Asn Gly Leu Val Leu				
163	168	173	178	
gaa tca agg aaa aga aga gaa cat ctc agt gaa gag gat att ctt cga				873
Glu Ser Arg Lys Arg Arg Glu His Leu Ser Glu Glu Asp Ile Leu Arg				
179	184	189	194	
aat aag gcc atc atg gag agt ttg agt aaa ggt gga aac ata atg gaa				921
Asn Lys Ala Ile Met Glu Ser Leu Ser Lys Gly Gly Asn Ile Met Glu				
195	200	205	210	
cag aat ttt gag ccg att cga aga cag tct ctt aca cct cct cct cag				969
Gln Asn Phe Glu Pro Ile Arg Arg Gln Ser Leu Thr Pro Pro Pro Gln				
211	216	221	226	
aac act att aca tgg gaa gaa tat ata tct gct gaa aat gga aaa gct				1017
Asn Thr Ile Thr Trp Glu Glu Tyr Ile Ser Ala Glu Asn Gly Lys Ala				
227	232	237	242	
cct cat ctg ggt aga gaa ttg gtg tgc aaa gag agt aag aaa acg ttt				1065
Pro His Leu Gly Arg Glu Leu Val Cys Lys Glu Ser Lys Lys Thr Phe				
243	248	253	258	
aaa gct acg ata gcc atg agc cag gaa ttt ccc tta ggg ata gag tta				1113
Lys Ala Thr Ile Ala Met Ser Gln Glu Phe Pro Leu Gly Ile Glu Leu				
259	264	269	274	
tta ttg aat gtt tta gaa gta gta gct ccc ttc aag cac ttt aac aag				1161
Leu Leu Asn Val Leu Glu Val Val Ala Pro Phe Lys His Phe Asn Lys				
275	280	285	290	
ctt aga gaa ttt gtt cag atg aag ctt cct cca ggc ttt cct gta aaa				1209
Leu Arg Glu Phe Val Gln Met Lys Leu Pro Pro Gly Phe Pro Val Lys				
291	296	301	306	
tta gat ata cct gtg ttt ccc aca atc aca gcc act gtg act ttt cag				1257
Leu Asp Ile Pro Val Phe Pro Thr Ile Thr Ala Thr Val Thr Phe Gln				
307	312	317	322	
gag ttt cga tac gat gaa ttt gat ggc tcc atc ttt act ata cct gat				1305
Glu Phe Arg Tyr Asp Glu Phe Asp Gly Ser Ile Phe Thr Ile Pro Asp				
323	328	333	338	
gac tac aag gaa gac cca agc cgt ttt cct gat ctt taa ctgacgtgga				1354
Asp Tyr Lys Glu Asp Pro Ser Arg Phe Pro Asp Leu *				
339	344	349		
aaaggatgcc gtctaaccacaa ggaaagaaaa tacagagacc ctagaagtgg atccaaatag				1414
aagggacaaa tgcttttcagt gaagaaaagg gaattacaca ttgaatcgac acatcagtaa				1474



ctt tac aag gtg ctg agt tcc ctt ggt tac cat gtg gtc acc ttt gac Leu Tyr Lys Val Leu Ser Ser Leu Gly Tyr His Val Val Thr Phe Asp 132 137 142 147	489
tac aga ggt tgg ggt gac tca gtg gga acg cca tct gag cgg ggc atg Tyr Arg Gly Trp Gly Asp Ser Val Gly Thr Pro Ser Glu Arg Gly Met 148 153 158 163	537
acc tat gac gca ctc cac gtt ttt gac tgg atc aaa gca aga agt ggt Thr Tyr Asp Ala Leu His Val Phe Asp Trp Ile Lys Ala Arg Ser Gly 164 169 174 179	585
gac aac ccc gtg tac atc tgg ggc cac tct ctg ggc act ggc gtg gcg Asp Asn Pro Val Tyr Ile Trp Gly His Ser Leu Gly Thr Gly Val Ala 180 185 190 195	633
aca aat ctg gtg cgg cgc ctc tgt gag cga gag acg cct cca gat gcc Thr Asn Leu Val Arg Arg Leu Cys Glu Arg Glu Thr Pro Pro Asp Ala 196 201 206 211	681
ctt ata ttg gaa tct cca ttc act aat atc cgc gaa gaa gct aag agc Leu Ile Leu Glu Ser Pro Phe Thr Asn Ile Arg Glu Glu Ala Lys Ser 212 217 222 227	729
cat cca ttt tca gtg ata tat cga tac ttc cct ggg ttt gac tgg ttc His Pro Phe Ser Val Ile Tyr Arg Tyr Phe Pro Gly Phe Asp Trp Phe 228 233 238 243	777
ttc ctt gat cct att aca agt agt gga att aaa ttt gca aat gat gaa Phe Leu Asp Pro Ile Thr Ser Ser Gly Ile Lys Phe Ala Asn Asp Glu 244 249 254 259	825
aac gtg aag cac atc tcc tgt ccc ctg ctc atc ctg cac gct gag gac Asn Val Lys His Ile Ser Cys Pro Leu Leu Ile Leu His Ala Glu Asp 260 265 270 275	873
gac ccg gtg gtg ccc ttc cag ctt ggc aga aag ctc tat agc atc gcc Asp Pro Val Val Pro Phe Gln Leu Gly Arg Lys Leu Tyr Ser Ile Ala 276 281 286 291	921
gca cca gct cga agc ttc cga gac ttc aaa gtt cag ttt gtg ccc ttt Ala Pro Ala Arg Ser Phe Arg Asp Phe Lys Val Gln Phe Val Pro Phe 292 297 302 307	969
cat tca gac ctt ggc tac agg cac aaa tac att tac aag agc cct gag His Ser Asp Leu Gly Tyr Arg His Lys Tyr Ile Tyr Lys Ser Pro Glu 308 313 318 323	1017
ctg cca cgg ata ctg agg gaa ttc ctg ggg aag tcg gag cct gag cac Leu Pro Arg Ile Leu Arg Glu Phe Leu Gly Lys Ser Glu Pro Glu His 324 329 334 339	1065
cag cac tga gcctggc cgtgggaagg aagcatgaag acctctgccc tctctccggt Gln His * 340	1121

ttctccagtc cagcagcccc gtatcctgaa gccccagggg gccggcacct gcaatgctca 1181  
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 ctcttgccg cccctcaacc tgagatcttg ttgggagact taatggcagc aggcagccat 1361  
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 ctaattgttt ctgtttctct ttatcatcat caaacattgc agctacgact acctgtcatt 180  
 tatcccgctc tcggatatca tgtgatattt gtctgtgtct tctttttaa aacactgtcg 240  
 tcataattgt ggtctaatac ttgttttctt ccccctagg aggaatcatt atagattcta 300  
 aaaatatatt ttcccttctc tgtggacttg gtataaaacg tagctttttt tctgcttgga 360  
 tttattttct aaaaatcaac accgtaaacc catatcagat acaacaaaat tggggtagtt 420  
 aaaacc atg agt tgt gga aat gag ttt gtg gaa aca tta aaa aaa att 468  
 Met Ser Cys Gly Asn Glu Phe Val Glu Thr Leu Lys Lys Ile  
 1 5 10  
 ggt tat ccc aaa gct gat aat ctt aat gga gaa gac ttt gac tgg ttg 516  
 Gly Tyr Pro Lys Ala Asp Asn Leu Asn Gly Glu Asp Phe Asp Trp Leu  
 15 20 25 30  
 ttt gag ggc gtt gaa gat gaa tcg ttt ctg aag tgg ttt tgt ggg aat 564  
 Phe Glu Gly Val Glu Asp Glu Ser Phe Leu Lys Trp Phe Cys Gly Asn

31	36	41	46	
gtg aat gaa cag aac	gtg ttg tct gaa aga	gaa ttg gaa gct ttt agc	612	
Val Asn Glu Gln Asn	Val Leu Ser Glu Arg	Glu Leu Glu Ala Phe Ser		
47	52	57	62	
att ctt cag aaa tca	ggc aag cct att cta	gaa ggg gcg gca ttg gat	660	
Ile Leu Gln Lys Ser	Gly Lys Pro Ile Leu	Glu Gly Ala Ala Leu Asp		
63	68	73	78	
gaa gct ctt aaa acg	tgt aaa act tct gat	ttg aag aca cct aga ctg	708	
Glu Ala Leu Lys Thr	Cys Lys Thr Ser Asp	Leu Lys Thr Pro Arg Leu		
79	84	89	94	
gat gat aaa gag ctg	gag aaa tta gag gat	gag gtt caa act cta ctg	756	
Asp Asp Lys Glu Leu	Glu Lys Leu Glu Asp	Glu Val Gln Thr Leu Leu		
95	100	105	110	
aaa tta aag aac cta	aaa att cag cga cgt	aat aaa tgt caa ttg atg	804	
Lys Leu Lys Asn Leu	Lys Ile Gln Arg Arg	Asn Lys Cys Gln Leu Met		
111	116	121	126	
gct tca gta act agc	cac aaa tct ctg agg	tta aat gct aaa gaa gaa	852	
Ala Ser Val Thr Ser	His Lys Ser Leu Arg	Leu Asn Ala Lys Glu Glu		
127	132	137	142	
gaa gcc act aaa aag	ctg aag cag agt caa	gga att cta aat gca atg	900	
Glu Ala Thr Lys Lys	Leu Lys Gln Ser Gln	Gly Ile Leu Asn Ala Met		
143	148	153	158	
atc act aag atc agt	aat gaa ctt cag gct	ctt act gat gaa gtt aca	948	
Ile Thr Lys Ile Ser	Asn Glu Leu Gln Ala	Leu Thr Asp Glu Val Thr		
159	164	169	174	
caa ttg atg atg ttc	ttc aga cat tct aat	tta ggt caa ggg aca aat	996	
Gln Leu Met Met Phe	Phe Arg His Ser Asn	Leu Gly Gln Gly Thr Asn		
175	180	185	190	
cca ctg gta ttt tta	tcg caa ttt tcc ttg	gaa aaa tac cta agt cag	1044	
Pro Leu Val Phe Leu	Ser Gln Phe Ser Leu	Glu Lys Tyr Leu Ser Gln		
191	196	201	206	
gaa gag caa agc aca	gca gca tta act ttg	tat acc aaa aaa cag ttc	1092	
Glu Glu Gln Ser Thr	Ala Ala Leu Thr Leu	Tyr Thr Lys Lys Gln Phe		
207	212	217	222	
ttt cag ggt ata cat	gaa gta gtt gaa agt	tca aat gaa gac aat ttt	1140	
Phe Gln Gly Ile His	Glu Val Val Glu Ser	Ser Asn Glu Asp Asn Phe		
223	228	233	238	
caa ctt tta gat ata	cag aca cca tct att	tgt gat aat caa gaa atc	1188	
Gln Leu Leu Asp Ile	Gln Thr Pro Ser Ile	Cys Asp Asn Gln Glu Ile		
239	244	249	254	
ctt gag gag aga cga	cta gag atg gct aga	ctg cag ctc gca tac att	1236	
Leu Glu Glu Arg Arg	Leu Glu Met Ala Arg	Leu Gln Leu Ala Tyr Ile		
255	260	265	270	



tgt gct caa cat cag tta att cac tta aaa gca agt aat tcg agc atg	1284
Cys Ala Gln His Gln Leu Ile His Leu Lys Ala Ser Asn Ser Ser Met	
271 276 281 286	
aag tca agt ata aaa tgg gca gag gag agt ctt cac agc cta acc agc	1332
Lys Ser Ser Ile Lys Trp Ala Glu Glu Ser Leu His Ser Leu Thr Ser	
287 292 297 302	
aag gct gtg gac aaa gaa aat ttg gat gct aaa att tct agc ttg acc	1380
Lys Ala Val Asp Lys Glu Asn Leu Asp Ala Lys Ile Ser Ser Leu Thr	
303 308 313 318	
agt gag att atg aaa ctt gaa aaa gag gtc act caa ata aaa gac aga	1428
Ser Glu Ile Met Lys Leu Glu Lys Glu Val Thr Gln Ile Lys Asp Arg	
319 324 329 334	
agt tta cct gct gtg gta aga gag aat gcc cag tta ttg aat atg cca	1476
Ser Leu Pro Ala Val Val Arg Glu Asn Ala Gln Leu Leu Asn Met Pro	
335 340 345 350	
gtg gta aag gga gat ttt gat ctg cag att gct aaa caa gat tat tat	1524
Val Val Lys Gly Asp Phe Asp Leu Gln Ile Ala Lys Gln Asp Tyr Tyr	
351 356 361 366	
aca gca aga caa gag tta gtt tta aat caa tta ata aaa caa aag gca	1572
Thr Ala Arg Gln Glu Leu Val Leu Asn Gln Leu Ile Lys Gln Lys Ala	
367 372 377 382	
tca ttt gaa ctt cta cag tta tca tat gaa att gaa tta aga aag cat	1620
Ser Phe Glu Leu Leu Gln Leu Ser Tyr Glu Ile Glu Leu Arg Lys His	
383 388 393 398	
cgg gac ata tat cgt caa ctt gaa aat ttg gtt caa gaa ctt agt caa	1668
Arg Asp Ile Tyr Arg Gln Leu Glu Asn Leu Val Gln Glu Leu Ser Gln	
399 404 409 414	
agt aac atg atg ctc tac aag caa tta gaa atg tta aca gat cca tca	1716
Ser Asn Met Met Leu Tyr Lys Gln Leu Glu Met Leu Thr Asp Pro Ser	
415 420 425 430	
gtt tct caa cag ata aat cca agg aat acc att gat act aag gat tat	1764
Val Ser Gln Gln Ile Asn Pro Arg Asn Thr Ile Asp Thr Lys Asp Tyr	
431 436 441 446	
tct act cat agg ctt tac caa gtt ttg gag gga gag aat aag aaa aaa	1812
Ser Thr His Arg Leu Tyr Gln Val Leu Glu Gly Glu Asn Lys Lys Lys	
447 452 457 462	
gaa ttg ttt cta act cat gga aac ctt gag gaa gtg gct gag aaa ttg	1860
Glu Leu Phe Leu Thr His Gly Asn Leu Glu Glu Val Ala Glu Lys Leu	
463 468 473 478	
aaa cag aat att tct tta gta caa gat cag ttg gca gta tct gct caa	1908
Lys Gln Asn Ile Ser Leu Val Gln Asp Gln Leu Ala Val Ser Ala Gln	
479 484 489 494	

gaa cat tct ttc ttt ctg tcc aaa cgg aat aag gat gtg gac atg ctt	1956
Glu His Ser Phe Phe Leu Ser Lys Arg Asn Lys Asp Val Asp Met Leu	
495 500 505 510	
tgt gat act ttg tat caa gga gga aat cag ctt ttg ctt agt gat cag	2004
Cys Asp Thr Leu Tyr Gln Gly Gly Asn Gln Leu Leu Leu Ser Asp Gln	
511 516 521 526	
gag tta aca gag cag ttt cat aaa gtt gaa tct caa ctg aat aag cta	2052
Glu Leu Thr Glu Gln Phe His Lys Val Glu Ser Gln Leu Asn Lys Leu	
527 532 537 542	
aat cat ctc ctc act gat att ctt gct gat gtg aag aca aaa aga aaa	2100
Asn His Leu Leu Thr Asp Ile Leu Ala Asp Val Lys Thr Lys Arg Lys	
543 548 553 558	
act ttg gca aat aat aaa tta cat caa atg gaa aga gaa ttc tat gta	2148
Thr Leu Ala Asn Asn Lys Leu His Gln Met Glu Arg Glu Phe Tyr Val	
559 564 569 574	
tat ttt tta aaa gat gaa gat tat ctg aaa gat att gtg gag aat tta	2196
Tyr Phe Leu Lys Asp Glu Asp Tyr Leu Lys Asp Ile Val Glu Asn Leu	
575 580 585 590	
gaa act caa tca aag att aag gct gtt agt ctt gaa gat tga aaattac	2245
Glu Thr Gln Ser Lys Ile Lys Ala Val Ser Leu Glu Asp *	
591 596 601	
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cactactaaa ttttttaaaaa aaaaaaa	2332

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tctccatctc ctgggtcctg tgaggcgcag cccatcatgg ggccattggt caggtgcacc	180
ctttgtccc ggggtcatcc accatc atg atc cat gac ttg tgc ctc gtc ttc	233
Met Ile His Asp Leu Cys Leu Val Phe	
1 5	
ccg gcc cca gcc aag gct gtc gtt tac gtg tgc gac att cag gag ctg	281
Pro Ala Pro Ala Lys Ala Val Val Tyr Val Ser Asp Ile Gln Glu Leu	

10	15	20	25	
tac atc cgt gtg gtt gac aag gtg gag att ggg aag aca gtg aag gca				329
Tyr Ile Arg Val Val Asp Lys Val Glu Ile Gly Lys Thr Val Lys Ala				
26	31	36	41	
tac gtc cgc gtg ctg gac ttg cac aag aag ccc ttc ctt gcc aaa tac				377
Tyr Val Arg Val Leu Asp Leu His Lys Lys Pro Phe Leu Ala Lys Tyr				
42	47	52	57	
ttc ccc ttt atg gac ctg aag ctc cga gca gcc tcc ccg atc att aca				425
Phe Pro Phe Met Asp Leu Lys Leu Arg Ala Ala Ser Pro Ile Ile Thr				
58	63	68	73	
ttg gtg gcc ctt gat gaa gcc ctt gac aac tac acc atc aca ttc ctc				473
Leu Val Ala Leu Asp Glu Ala Leu Asp Asn Tyr Thr Ile Thr Phe Leu				
74	79	84	89	
atc cgc ggt gtg gcc atc ggc cag acc agt cta act gca agt gtg acc				521
Ile Arg Gly Val Ala Ile Gly Gln Thr Ser Leu Thr Ala Ser Val Thr				
90	95	100	105	
aat aaa gct gga cag aga atc aac tca gcc cca caa cag att gaa gtc				569
Asn Lys Ala Gly Gln Arg Ile Asn Ser Ala Pro Gln Gln Ile Glu Val				
106	111	116	121	
ttt ccc ccg ttc agg ctg atg ccc agg aag gtg aca ctg ctt atc ggg				617
Phe Pro Pro Phe Arg Leu Met Pro Arg Lys Val Thr Leu Leu Ile Gly				
122	127	132	137	
gcc acg atg cag gtc acc tcc gag ggc ggc ccc cag cct cag tcc aac				665
Ala Thr Met Gln Val Thr Ser Glu Gly Gly Pro Gln Pro Gln Ser Asn				
138	143	148	153	
atc ctt ttc tcc atc agc aat gag agc gtt gcg ctg gtg agc gct gct				713
Ile Leu Phe Ser Ile Ser Asn Glu Ser Val Ala Leu Val Ser Ala Ala				
154	159	164	169	
ggg ctg gta cag ggc ctc gcc atc ggg aac ggc act gtg tct ggg ctc				761
Gly Leu Val Gln Gly Leu Ala Ile Gly Asn Gly Thr Val Ser Gly Leu				
170	175	180	185	
gtg cag gca gtg gat gca gag acc ggc aag gtg gtc atc atc tct cag				809
Val Gln Ala Val Asp Ala Glu Thr Gly Lys Val Val Ile Ile Ser Gln				
186	191	196	201	
gac ctc gtg cag gtg gag gtg ctg ctg cta agg gcc gtg agg atc cgc				857
Asp Leu Val Gln Val Glu Val Leu Leu Leu Arg Ala Val Arg Ile Arg				
202	207	212	217	
gcc ccc atc atg cgg atg agg acg ggc acc cag atg ccc atc tat gtc				905
Ala Pro Ile Met Arg Met Arg Thr Gly Thr Gln Met Pro Ile Tyr Val				
218	223	228	233	
acc ggc atc acc aac cac cag aac cct ttc tcc ttt ggc aat gcc gtg				953
Thr Gly Ile Thr Asn His Gln Asn Pro Phe Ser Phe Gly Asn Ala Val				
234	239	244	249	

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Pro Gly Leu Thr Phe His Trp Ser Val Thr Lys Arg Asp Val Leu Asp	
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Leu Arg Gly Arg His His Glu Ala Ser Ile Arg Leu Pro Ser Gln Tyr	
266 271 276 281	
aac ttt gcc atg aac gtg ctc ggc cgg gta aaa ggc cgg acc ggg ctg	1097
Asn Phe Ala Met Asn Val Leu Gly Arg Val Lys Gly Arg Thr Gly Leu	
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Arg Ala Val Val Lys Ala Val Asp Pro Thr Ser Gly Gln Leu Tyr Gly	
298 303 308 313	
ctg gcc aga gaa ctc tcg gat gag atc caa gtc cag gtg ttt gag aag	1193
Leu Ala Arg Glu Leu Ser Asp Glu Ile Gln Val Gln Val Phe Glu Lys	
314 319 324 329	
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Leu Gln Leu Leu Asn Pro Glu Ile Glu Ala Glu Gln Ile Leu Met Ser	
330 335 340 345	
ccc aac tca tat ata aag ctg cag aca aac agg gat ggt gca gcc tct	1289
Pro Asn Ser Tyr Ile Lys Leu Gln Thr Asn Arg Asp Gly Ala Ala Ser	
346 351 356 361	
ctg agc tac cgc gtc ctg gat gga ccc gaa aag gtt cca gtt gtg cat	1337
Leu Ser Tyr Arg Val Leu Asp Gly Pro Glu Lys Val Pro Val Val His	
362 367 372 377	
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Val Asp Glu Lys Gly Phe Leu Ala Ser Gly Ser Met Ile Gly Thr Ser	
378 383 388 393	
acc atc gaa gtg att gca caa gag ccc ttt ggg gcc aac caa acc atc	1433
Thr Ile Glu Val Ile Ala Gln Glu Pro Phe Gly Ala Asn Gln Thr Ile	
394 399 404 409	
att gtt gct gta aag gta tcc cct gtt tcc tac ctg agg gtt tcc atg	1481
Ile Val Ala Val Lys Val Ser Pro Val Ser Tyr Leu Arg Val Ser Met	
410 415 420 425	
agc cct gtc ctg cac acc cag aac aag gag gcc ctg gtg gcc gtg cct	1529
Ser Pro Val Leu His Thr Gln Asn Lys Glu Ala Leu Val Ala Val Pro	
426 431 436 441	
ttg gga atg acc gtg acc ttc act gtc cac ttc cac gac aac tct gga	1577
Leu Gly Met Thr Val Thr Phe Thr Val His Phe His Asp Asn Ser Gly	
442 447 452 457	
gat gtc ttc cat gct cac agt tcg gtc ctc aac ttt gcc act aac aga	1625
Asp Val Phe His Ala His Ser Ser Val Leu Asn Phe Ala Thr Asn Arg	
458 463 468 473	

gac gac ttt gtg cag atc ggg aag ggc ccc acc aac aac acc tgt gtt	1673
Asp Asp Phe Val Gln Ile Gly Lys Gly Pro Thr Asn Asn Thr Cys Val	
474 479 484 489	
gtc cgc aca gtc agc gtg ggc ctg aca ctg ctc cgt gtg tgg gac gca	1721
Val Arg Thr Val Ser Val Gly Leu Thr Leu Leu Arg Val Trp Asp Ala	
490 495 500 505	
gag cac ccg ggc ctc tcg gac ttc atg ccc ctg cct gtc cta cag gcc	1769
Glu His Pro Gly Leu Ser Asp Phe Met Pro Leu Pro Val Leu Gln Ala	
506 511 516 521	
atc tcc cca gag ctg tct ggg gcc atg gtg gtg ggg gac gtg ctc tgt	1817
Ile Ser Pro Glu Leu Ser Gly Ala Met Val Val Gly Asp Val Leu Cys	
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gctcgcgggt ctggcgtgc tggaaaggaa taatgctgac agc atg tct gca cat 175  
Met Ser Ala His  
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tcc atg ctc tgt gaa cga atc gcc ata gcc aag gaa ctg atc aag aga 223  
Ser Met Leu Cys Glu Arg Ile Ala Ile Ala Lys Glu Leu Ile Lys Arg  
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gca gaa tca ctt tct aga tca aga aaa ggt ggc ata gaa ggt ggt gca 271  
Ala Glu Ser Leu Ser Arg Ser Arg Lys Gly Ile Glu Gly Gly Ala  
21 26 31 36

aag ctg tgc agc aaa ttg aag gca gaa tta aaa ttc ttg cag aaa gta	319
Lys Leu Cys Ser Lys Leu Lys Ala Glu Leu Lys Phe Leu Gln Lys Val	
37 42 47 52	
gaa gct ggg aaa gta gct att aaa gag tct cat tta cag agc act aac	367
Glu Ala Gly Lys Val Ala Ile Lys Glu Ser His Leu Gln Ser Thr Asn	
53 58 63 68	
cta aca cac ctg aga gcc att gtg gaa tca gca gaa aac ctg gaa gaa	415
Leu Thr His Leu Arg Ala Ile Val Glu Ser Ala Glu Asn Leu Glu Glu	
69 74 79 84	
gtt gtt agt gtt ctt cat gtc ttt ggt tat aca gat acc tta gga gaa	463
Val Val Ser Val Leu His Val Phe Gly Tyr Thr Asp Thr Leu Gly Glu	
85 90 95 100	
aag caa acc ctt gtg gta gat gta gtt gca aat ggt ggt cat act tgg	511
Lys Gln Thr Leu Val Val Asp Val Val Ala Asn Gly Gly His Thr Trp	
101 106 111 116	
gtg aaa gcc att ggc cgg aag gct gaa gct ctt cat aac atc tgg ctg	559
Val Lys Ala Ile Gly Arg Lys Ala Glu Ala Leu His Asn Ile Trp Leu	
117 122 127 132	
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Gly Arg Gly Gln Tyr Gly Asp Lys Ser Ile Ile Glu Gln Ala Glu Asp	
133 138 143 148	
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Phe Leu Gln Ala Ser His Gln Gln Pro Val Gln Tyr Ser Asn Pro His	
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Ile Ile Phe Ala Phe Tyr Asn Ser Val Ser Ser Pro Met Ala Glu Lys	
165 170 175 180	
ctg aaa gaa atg ggc ata tct gtg aga gga gac ata gta gca gtc aac	751
Leu Lys Glu Met Gly Ile Ser Val Arg Gly Asp Ile Val Ala Val Asn	
181 186 191 196	
gct ctg tta gat cac cct gaa gag ctt caa cca agt gag agt gaa tca	799
Ala Leu Leu Asp His Pro Glu Glu Leu Gln Pro Ser Glu Ser Glu Ser	
197 202 207 212	
gat gat gag ggc cct gaa ctt ttg cag gtg acc aga gtt gac cga gaa	847
Asp Asp Glu Gly Pro Glu Leu Leu Gln Val Thr Arg Val Asp Arg Glu	
213 218 223 228	
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Asn Ile Leu Ala Ser Val Ala Phe Pro Thr Glu Ile Lys Val Asp Val	
229 234 239 244	
tgc aaa aga gta aat ctg gac att act act tta atc aca tat gta tct	943
Cys Lys Arg Val Asn Leu Asp Ile Thr Thr Leu Ile Thr Tyr Val Ser	
245 250 255 260	

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 Ala Leu Ser Tyr Gly Gly Cys His Phe Ile Phe Lys Glu Lys Val Leu  
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aca gaa caa gca gag caa gag agg aaa gag cag gtt cta cct cag ctg 1039  
 Thr Glu Gln Ala Glu Gln Glu Arg Lys Glu Gln Val Leu Pro Gln Leu  
 277 282 287 292

gag gcc ttt atg aag gac aag gag ttg ttt gct tgt gaa tct gct gtc 1087  
 Glu Ala Phe Met Lys Asp Lys Glu Leu Phe Ala Cys Glu Ser Ala Val  
 293 298 303 308

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 Lys Asp Phe Gln Ser Ile Leu Asp Thr Leu Gly Gly Pro Gly Glu Arg  
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 Glu Arg Ala Thr Val Leu Ile Lys Arg Ile Asn Val Val Pro Asp Gln  
 325 330 335 340

cct tct gag cgt gcc ttg aga cta gtg gcc agt tca aaa att aat agc 1231  
 Pro Ser Glu Arg Ala Leu Arg Leu Val Ala Ser Ser Lys Ile Asn Ser  
 341 346 351 356

cgc tca tta aca att ttt ggg acg gga gac acc cta aaa gcc atc aca 1279  
 Arg Ser Leu Thr Ile Phe Gly Thr Gly Asp Thr Leu Lys Ala Ile Thr  
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atg act gct aat agt ggt ttt gtc aga gct gca aac aac cag ggt gtt 1327  
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aaa ttt agt gtg ttt atc cat cag ccc aga gca ctt act gag agt aaa 1375  
 Lys Phe Ser Val Phe Ile His Gln Pro Arg Ala Leu Thr Glu Ser Lys  
 389 394 399 404

gag gct cta gcc acc ccc tta cca aaa gac tac aca act gac agt gaa 1423  
 Glu Ala Leu Ala Thr Pro Leu Pro Lys Asp Tyr Thr Thr Asp Ser Glu  
 405 410 415 420

cac taa agataccctt taaatatttt tgtggaagta agttatttat accaaaggct 1479  
 His \*  
 421

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cttaaaccag tagagtttct ttgtctctca tctaaagtat ataacctccc aaagtagaaa 1599

aagcacaaga gagaagctta tctatcaaac tgtctgcatt agtgcaatta agaaccgaaa 1659

tacgtctata taaagctttc agctgtattg taatactttg attcgatagg gctacaactc 1719

ccctactgct aaccacattt catggaatat ggctacattg catcttgcatt taaatatctg 1779

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 aggagtttct ccagcgaaac ttcctcacac ctcttgggtct tgggtctcttc agacactttc 180  
 cttcctgttc tctggagatc ttgcagaaaa gagcctgcag tgtttccctt gctcagcc 238  
 atg ctc ctg gag ctt atc cca ctg ctg ggg ata cat ttt gtc ctg aga 286  
 Met Leu Leu Glu Leu Ile Pro Leu Leu Gly Ile His Phe Val Leu Arg  
 1 5 10 15  
 act gcc aga gcc cag tca gtg acc cag cct gac atc cac atc act gtc 334  
 Thr Ala Arg Ala Gln Ser Val Thr Gln Pro Asp Ile His Ile Thr Val  
 17 22 27 32  
 tct gaa gga gcc tca ctg gag ttg aga tgt aac tat tcc tat ggg gca 382  
 Ser Glu Gly Ala Ser Leu Glu Leu Arg Cys Asn Tyr Ser Tyr Gly Ala  
 33 38 43 48  
 aca cct tat ctc ttc tgg atg gaa aga act gtt gaa gaa gct ttt ata 430  
 Thr Pro Tyr Leu Phe Trp Met Glu Arg Thr Val Glu Glu Ala Phe Ile  
 49 54 59 64  
 ctt ctt gtt tgc ttg aag oct tgg agg gta gca agt agt ctg gag aaa 478  
 Leu Leu Val Cys Leu Lys Pro Trp Arg Val Ala Ser Ser Leu Glu Lys  
 65 70 75 80  
 aag gag aag gag gat gaa tct ttc cag ctg cta ctt ggc tca cgc tat 526  
 Lys Glu Lys Glu Asp Glu Ser Phe Gln Leu Leu Leu Gly Ser Arg Tyr  
 81 86 91 96  
 aat gta tta aag gca cac tgt ctt cta cct ttg ata aga tgg cta act 574  
 Asn Val Leu Lys Ala His Cys Leu Leu Pro Leu Ile Arg Trp Leu Thr  
 97 102 107 112  
 tca ggt gac tca ctg tta tca gct cag cca cat tgc cca cag gga ctg 622  
 Ser Gly Asp Ser Leu Leu Ser Ala Gln Pro His Cys Pro Gln Gly Leu  
 113 118 123 128  
 tga tggg cactttatgc gaatcttaaa ggaggttcct gcagcatgag aggcttctcc 679  
 \*  
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769

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ggcgaactgc gggagaaaaa ttttcgagaa tttccagcag gcaaggcagt ggccgctttg      180
actgcttgct tcggagatcc gagacgacgg agaaggcact cttatttacc gaccaagaaa      240
gtcctcccc cgtcctccgt tagctaatta aaacattttt cagggacgta gccatccaga      300
gggatttgct tcctaaggag aagaacttgg aaactctgtt gaccttggtt tttctagaaa      360
tagataaagc cttttcgagt catgcccgcc tgtctgctga tgcaactctt ctgacctctg      420
ggactactgc aacagtagcc ctattgcgag atggtattga actggttgta gccagtgttg      480
gggacagccg ggctattttg ttagaaaaag gaaaaccc      atg aag ctg acc att      533
                                   Met Lys Leu Thr Ile
                                   1

gac cat act cca gaa aga aaa gat gaa aaa gaa agg atc aag aaa tgt      581
Asp His Thr Pro Glu Arg Lys Asp Glu Lys Glu Arg Ile Lys Lys Cys
   6                11                16                21

ggg ggt ttt gta gct tgg aat agt ttg ggg cag cct cac gta aat ggc      629
Gly Gly Phe Val Ala Trp Asn Ser Leu Gly Gln Pro His Val Asn Gly
  22                27                32                37

agg ctt gca atg aca aga agt att gga gat ttg gac ctt aag acc agt      677
Arg Leu Ala Met Thr Arg Ser Ile Gly Asp Leu Asp Leu Lys Thr Ser
  38                43                48                53

ggg gtc ata gca gaa cct gaa act aag agg att aag tta cat cat gct      725
Gly Val Ile Ala Glu Pro Glu Thr Lys Arg Ile Lys Leu His His Ala
  54                59                64                69

gat gac agc ttc ctg gtc ctc acc aca gat gga att aac ttc atg gtg      773
Asp Asp Ser Phe Leu Val Leu Thr Thr Asp Gly Ile Asn Phe Met Val
  70                75                80                85

aat agt caa gag att tgt gac ttt gtc aat cag tgc cat gat ccc aac      821
Asn Ser Gln Glu Ile Cys Asp Phe Val Asn Gln Cys His Asp Pro Asn
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86	91	96	101	
gaa gca gcc cat gcg gtg act gaa cag gca ata cag tac ggt act gag				869
Glu Ala Ala His Ala Val Thr Glu Gln Ala Ile Gln Tyr Gly Thr Glu				
102	107	112	117	
gat aac agt act gca gta gta gtg cct ttt ggt gcc tgg gga aaa tat				917
Asp Asn Ser Thr Ala Val Val Val Pro Phe Gly Ala Trp Gly Lys Tyr				
118	123	128	133	
aag aac tct gaa atc aac ttc tca ttc agc aga agc ttt gcc tcc agt				965
Lys Asn Ser Glu Ile Asn Phe Ser Phe Ser Arg Ser Phe Ala Ser Ser				
134	139	144	149	
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Gly Arg Trp Ala *				
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actg				1024
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ccgccatagc gacggcaacg ggcgctgcgg agtgcctcca gccgtgaggg cggggccggc				180
gcgatgcccc gcccttcga tagctcatct ttgcgcgtcg cagtcgcgcg gagcccggt				240
tccgacgtgc agcctggcag tgcagtgagc tgtctggcct tttgtccttg atccttggtt				300
aaggaa atg acc aac cag tac ggt att ctc ttc aaa caa gag caa gcc				348
Met Thr Asn Gln Tyr Gly Ile Leu Phe Lys Gln Glu Gln Ala				
1 5 10				
cat gat gat gcc att tgg tca gtt gct tgg ggg aca aac aag aag gaa				396
His Asp Asp Ala Ile Trp Ser Val Ala Trp Gly Thr Asn Lys Lys Glu				
15 20 25 30				
aac tct gag aca gtg gtc aca ggc tcc cta gat gac ctg gtg aag gtc				444
Asn Ser Glu Thr Val Val Thr Gly Ser Leu Asp Asp Leu Val Lys Val				
31 36 41 46				
tgg aaa tgg cgt gat gag agg ctg gac cta cag tgg agt ctg gag gga				492
Trp Lys Trp Arg Asp Glu Arg Leu Asp Leu Gln Trp Ser Leu Glu Gly				

47	52	57	62	
cat cag ctg gga gtg gtg tct gtg gac atc agc cac acc ctg ccc att				540
His Gln Leu Gly Val Val Ser Val Asp Ile Ser His Thr Leu Pro Ile				
63	68	73	78	
gct gca tcc agc tct ctt gat gct cat att cgt ctt tgg gac ttg gaa				588
Ala Ala Ser Ser Ser Leu Asp Ala His Ile Arg Leu Trp Asp Leu Glu				
79	84	89	94	
aat ggc aaa cag ata aag tcc ata gat gca gga cct gtg gat gcc tgg				636
Asn Gly Lys Gln Ile Lys Ser Ile Asp Ala Gly Pro Val Asp Ala Trp				
95	100	105	110	
act ttg gcc ttt tct cct gat tcc cag tat ctg gcc aca gga act cat				684
Thr Leu Ala Phe Ser Pro Asp Ser Gln Tyr Leu Ala Thr Gly Thr His				
111	116	121	126	
gtc ggg aaa gtg aac att ttt ggt gtg gaa agt ggg aaa aag gaa tat				732
Val Gly Lys Val Asn Ile Phe Gly Val Glu Ser Gly Lys Lys Glu Tyr				
127	132	137	142	
tct ttg gac acg aga gga aaa ttc att ttt agt att gca tat agt cct				780
Ser Leu Asp Thr Arg Gly Lys Phe Ile Phe Ser Ile Ala Tyr Ser Pro				
143	148	153	158	
gat ggg aaa tac cta gcc agt gga gcc ata gat gga atc atc aat att				828
Asp Gly Lys Tyr Leu Ala Ser Gly Ala Ile Asp Gly Ile Ile Asn Ile				
159	164	169	174	
ttt gat att gca act gga aaa ctt ctg cat acc ctg gaa ggc cat gcc				876
Phe Asp Ile Ala Thr Gly Lys Leu Leu His Thr Leu Glu Gly His Ala				
175	180	185	190	
ctg ccc att cgc tcc ttg acc ttt tcc ccg gac tcc cag ctc ctt gtc				924
Leu Pro Ile Arg Ser Leu Thr Phe Ser Pro Asp Ser Gln Leu Leu Val				
191	196	201	206	
act gct tca gat gat ggc tac atc aag atc tat gat gtg tgt cgc ttc				972
Thr Ala Ser Asp Asp Gly Tyr Ile Lys Ile Tyr Asp Val Cys Arg Phe				
207	212	217	222	
ttg ctg ctc tca agc cct act ccc cat gct tct gct tct agc ttg ctg				1020
Leu Leu Leu Ser Ser Pro Thr Pro His Ala Ser Ala Ser Ser Leu Leu				
223	228	233	238	
gga gct ggg aaa ctg acc aag cat gga aaa cta cag caa tgc tca taa				1068
Gly Ala Gly Lys Leu Thr Lys His Gly Lys Leu Gln Gln Cys Ser *				
239	244	249	254	
caggctaaaa ggctctgggg aagaaggcat ttcaacagca gaaaagagga agaagagggga				1128
gaagagaaaa tggagaaaca agaaataagc caacacaaaa gaggggtgaa gaaaagagag				1188
ggtgcaaaaag agaacaaagt aaaaacaaaa acaaaacaaa aaggacaaac aaatccccaa				1248
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1326

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ctcgcgtgtc acccaccagc cctcgagcag aggcaggctt ggagtctgca gccaccctgg      180
gaatgtctgt gcttcctcgt ggagctgaca tgatggtgaa ataggttcaa tcctccacct      240
accaggggcc cagacccttc cctggtctac cgacctgatg tggaccaga ggtggccaaa      300
gacaaggcca gcttcgggaa ctacacgtca ggtcccctcc tggaccgtgt cttcaccacc      360
tacaagctc   atg cac acg cac cag aca gtg gac ttc gtc agg agc aag      408
              Met His Thr His Gln Thr Val Asp Phe Val Arg Ser Lys
              1           5           10

cat gcc cag ttt ggg ggc ttc tcc tac aag aaa atg aca gtc atg gag      456
His Ala Gln Phe Gly Gly Phe Ser Tyr Lys Lys Met Thr Val Met Glu
  14           19           24           29

gcc gtg gac ctg ctg gat ggg ctg gtg gat gag tcg gac ccg gac gta      504
Ala Val Asp Leu Leu Asp Gly Leu Val Asp Glu Ser Asp Pro Asp Val
  30           35           40           45

gat ttc ccc aac tcc ttc cat gcc ttc cag aca gcg gag ggc atc cgg      552
Asp Phe Pro Asn Ser Phe His Ala Phe Gln Thr Ala Glu Gly Ile Arg
  46           51           56           61

aag gcc cac cca gac aag gac tgg ttc cac ctc gtc ggg ctc ctg cac      600
Lys Ala His Pro Asp Lys Asp Trp Phe His Leu Val Gly Leu Leu His
  62           67           72           77

gac ctg ggg aag gtc ctg gcc ctg ttc ggg gag ccc cag tgg gct gtc      648
Asp Leu Gly Lys Val Leu Ala Leu Phe Gly Glu Pro Gln Trp Ala Val
  78           83           88           93

gtc ggc gac acc ttc ccc gtc gga tgc cgt ccg cag gcc tcc gtg gtt      696
Val Gly Asp Thr Phe Pro Val Gly Cys Arg Pro Gln Ala Ser Val Val
  94           99          104          109

ttc tgc gac tcc acc ttc cag gac aac cct gac ctc cag gat cct cga      744
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Phe Cys Asp Ser Thr	Phe Gln Asp Asn Pro	Asp Leu Gln Asp Pro Arg	
110	115	120	125
tac agc aca gag ctc	ggg atg tat cag ccc	cac tgt ggg ctc gac agg	792
Tyr Ser Thr Glu Leu	Gly Met Tyr Gln Pro	His Cys Gly Leu Asp Arg	
126	131	136	141
gtc ctc atg tcc tgg	ggc cat gat gag tac	atg tac cag gtg atg aag	840
Val Leu Met Ser Trp	Gly His Asp Glu Tyr	Met Tyr Gln Val Met Lys	
142	147	152	157
ttt aac aag ttc tca	ctg ccc cct gag gct	ttc tac atg atc cgg ttc	888
Phe Asn Lys Phe Ser	Leu Pro Pro Glu Ala	Phe Tyr Met Ile Arg Phe	
158	163	168	173
cac tcc ttc tac ccc	tgg cac acg ggc cgc	gac tac cag cag ctg tgc	936
His Ser Phe Tyr Pro	Trp His Thr Gly Arg	Asp Tyr Gln Gln Leu Cys	
174	179	184	189
agc cag cag gac ctg	gcc atg ctg ccc tgg	gtg cgg gag ttc aac aag	984
Ser Gln Gln Asp Leu	Ala Met Leu Pro Trp	Val Arg Glu Phe Asn Lys	
190	195	200	205
ttc gac ctc tac acc	aag tgc ccg gac ctg	ccg gac gtg gac aag ctg	1032
Phe Asp Leu Tyr Thr	Lys Cys Pro Asp Leu	Pro Asp Val Asp Lys Leu	
206	211	216	221
cgg ccc tac tac cag	ggg ctc att gac aag	tac tgc cct ggc atc ctg	1080
Arg Pro Tyr Tyr Gln	Gly Leu Ile Asp Lys	Tyr Cys Pro Gly Ile Leu	
222	227	232	237
agc tgg tga ccctcct	gccacccaag ctgctgctgg	acctaggcct ggcctccgc	1136
Ser Trp *			
238			
ctgcctgcag aggcctggcc	ctggggcaaac agccgccatc	agggttcacc tcggtggggg	1196
acccactca ccccttagg	gtcgccaccc ctcacggcaa	cttgtgcctg gcgtcaataa	1256
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Met Glu Arg Thr Ala Glu Ala Leu Ala Ala	Lys Glu Lys Val Lys Met
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Glu Asn His Lys Gly Arg Glu Arg Gln Met Glu Val Ala Ser Asp Phe	
17 22 27 32	
ttg cga caa gga aac cgg cag tct tcc gct tcc ggt tgc tct gtt gcc	144
Leu Arg Gln Gly Asn Arg Gln Ser Ser Ala Ser Gly Cys Ser Val Ala	
33 38 43 48	
ata gta acc gca ccc ata aca gcc gtg gtg gtt atg gct ggc ctg agc	192
Ile Val Thr Ala Pro Ile Thr Ala Val Val Val Met Ala Gly Leu Ser	
49 54 59 64	
ggc gcg cag atc ccc gac ggg gag ttc acc gcg gtc gtg tac cgc ctc	240
Gly Ala Gln Ile Pro Asp Gly Glu Phe Thr Ala Val Val Tyr Arg Leu	
65 70 75 80	
atc cgc aat gca cgc tac gcc gag gcg gtg cag ctg ctg ggc gga gaa	288
Ile Arg Asn Ala Arg Tyr Ala Glu Ala Val Gln Leu Leu Gly Gly Glu	
81 86 91 96	
ctg cag cgg agc cct agg agc cgc gcc ggc ctg tcg ctg cta ggc tac	336
Leu Gln Arg Ser Pro Arg Ser Arg Ala Gly Leu Ser Leu Leu Gly Tyr	
97 102 107 112	
tgc tac tac cgc ctg cag gag ttc gcg ctg gcg gcc gag tgc tat gag	384
Cys Tyr Tyr Arg Leu Gln Glu Phe Ala Leu Ala Ala Glu Cys Tyr Glu	
113 118 123 128	
cag ctg ggc cag ctg cac ccg gaa ctg gag cag tac cgc ctg tac cag	432
Gln Leu Gly Gln Leu His Pro Glu Leu Glu Gln Tyr Arg Leu Tyr Gln	
129 134 139 144	
gcc cag gcc ctg tac aag gcc tgc ctt tat gcg gag gcc acc cgg gtc	480
Ala Gln Ala Leu Tyr Lys Ala Cys Leu Tyr Ala Glu Ala Thr Arg Val	
145 150 155 160	
gcc ttc ctt ctc ctg gat aac ccc gcc tac cac agc cgg gtc ctc cgc	528
Ala Phe Leu Leu Leu Asp Asn Pro Ala Tyr His Ser Arg Val Leu Arg	
161 166 171 176	
ctg caa gct gct atc aag tac agc gag ggc gat ctg cca ggg tcc agg	576
Leu Gln Ala Ala Ile Lys Tyr Ser Glu Gly Asp Leu Pro Gly Ser Arg	
177 182 187 192	
agc ctg gta gag cag ctg ccg agt agg gaa ggg gga gag gaa agt ggg	624
Ser Leu Val Glu Gln Leu Pro Ser Arg Glu Gly Gly Glu Glu Ser Gly	
193 198 203 208	
ggc gag aat gag acc gat ggc cag atc aac ctg ggt tgt ttg ctc tac	672
Gly Glu Asn Glu Thr Asp Gly Gln Ile Asn Leu Gly Cys Leu Leu Tyr	
209 214 219 224	
aag gag gga cag tat gaa gct gca tgc tcc aag ttt ttt gcc gcc ctg	720
Lys Glu Gly Gln Tyr Glu Ala Ala Cys Ser Lys Phe Phe Ala Ala Leu	
225 230 235 240	

cag gcc tcg ggc tac cag cct gac ctt tcc tac aac ctg gct ttg gcc	768
Gln Ala Ser Gly Tyr Gln Pro Asp Leu Ser Tyr Asn Leu Ala Leu Ala	
241 246 251 256	
tat tac agc agc cga cag tat gct tca gca ctg aag cat atc gct gag	816
Tyr Tyr Ser Ser Arg Gln Tyr Ala Ser Ala Leu Lys His Ile Ala Glu	
257 262 267 272	
att att gag cgt ggc atc cgc cag cac cct gag cta ggt gtg ggc atg	864
Ile Ile Glu Arg Gly Ile Arg Gln His Pro Glu Leu Gly Val Gly Met	
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Thr Thr Glu Gly Ile Asp Val Arg Ser Val Gly Asn Thr Leu Val Leu	
289 294 299 304	
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His Gln Thr Ala Leu Val Glu Ala Phe Asn Leu Lys Ala Ala Ile Glu	
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Tyr Gln Leu Arg Asn Tyr Glu Ala Ala Gln Glu Ala Leu Thr Asp Met	
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Pro Pro Arg Ala Glu Glu Glu Leu Asp Pro Val Thr Leu His Asn Gln	
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Ala Leu Met Asn Met Asp Ala Arg Pro Thr Glu Gly Phe Glu Lys Leu	
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Gln Phe Leu Leu Gln Gln Asn Pro Phe Pro Pro Glu Thr Phe Gly Asn	
369 374 379 384	
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Leu Leu Leu Leu Tyr Cys Lys Tyr Glu Tyr Phe Asp Leu Ala Ala Asp	
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gtc ctg gca gaa aat gcc cat ttg att tat aag ttc ctc aca ccc tat	1248
Val Leu Ala Glu Asn Ala His Leu Ile Tyr Lys Phe Leu Thr Pro Tyr	
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ctc tat gac ttc ttg gac gct gtg atc act tgc cag aca gct cct gaa	1296
Leu Tyr Asp Phe Leu Asp Ala Val Ile Thr Cys Gln Thr Ala Pro Glu	
417 422 427 432	
gag gct ttc att aag ctt gat ggg cta gca ggg atg ctg act gag cag	1344
Glu Ala Phe Ile Lys Leu Asp Gly Leu Ala Gly Met Leu Thr Glu Gln	
433 438 443 448	
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Leu Arg Arg Leu Thr Lys Gln Val Gln Glu Ala Arg His Asn Arg Asp	
449 454 459 464	
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Lys	Tyr	Ile	Pro	Val	Leu	Met	Ala	Gln	Ala	Lys	Ile	Tyr	Trp	Asn	Leu	
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Glu	Asn	Tyr	Pro	Met	Val	Glu	Lys	Ile	Phe	Arg	Lys	Ser	Val	Glu	Phe	
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Cys	Asn	Asp	His	Asp	Val	Trp	Lys	Leu	Asn	Val	Ala	His	Val	Leu	Phe	
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Val	Lys	Lys	His	Tyr	Asp	Asn	Ile	Leu	Asn	Val	Ser	Ala	Ile	Val	Leu	
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Ala	Asn	Leu	Cys	Val	Ser	Tyr	Ile	Met	Thr	Ser	Gln	Asn	Glu	Glu	Ala	
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Glu	Glu	Leu	Met	Arg	Lys	Ile	Glu	Lys	Glu	Glu	Glu	Gln	Leu	Ser	Tyr	
577					582					587					592	
gat	gac	cca	gat	aag	aaa	atg	tac	cat	ctc	tgc	att	gtg	aat	ttg	gtg	1824
Asp	Asp	Pro	Asp	Lys	Lys	Met	Tyr	His	Leu	Cys	Ile	Val	Asn	Leu	Val	
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Ile	Gly	Thr	Leu	Tyr	Cys	Ala	Lys	Gly	Asn	Tyr	Asp	Phe	Gly	Ile	Ser	
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625					630					635					640	
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641					646					651					656	
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Gln	Phe	Leu	Glu	His	Cys	Glu	Leu	His	Gly	Arg	Asn	Ile	Pro	Ala	Val	
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Ile	Glu	Gln	Pro	Leu	Glu	Glu	Glu	Arg	Met	His	Ala	Ala	Asp	Arg	Ser	

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agc tgt ggc agt ttc tgc tgg agc tgc tgg ctg acc gcg cga acg cgg				2160
Ser Cys Gly Ser Phe Cys Trp Ser Cys Trp Leu Thr Ala Arg Thr Arg				
705	710	715	720	
ctg cat cgc gtg gga ggg cgg tca cgg cga gtt caa gct cac gga ccc				2208
Leu His Arg Val Gly Gly Arg Ser Arg Arg Val Gln Ala His Gly Pro				
721	726	731	736	
gga cga ggt ggc gcg gcg gtg ggg cga gcg caa gag caa gcc caa cat				2256
Gly Arg Gly Gly Ala Ala Val Gly Arg Ala Gln Glu Gln Ala Gln His				
737	742	747	752	
gaa cta cga caa gct gag ccg cgc cct gct atc tac tac gac aag aac				2304
Glu Leu Arg Gln Ala Glu Pro Arg Pro Ala Ile Tyr Tyr Asp Lys Asn				
753	758	763	768	
atc atg agc aag gtg cat ggt aag cgc tac gcc tac cgc ttc gac ttc				2352
Ile Met Ser Lys Val His Gly Lys Arg Tyr Ala Tyr Arg Phe Asp Phe				
769	774	779	784	
cag ggc ctg gcg cag gac ggc gcg ctc tac aag ctg ccc gcc gcc ctc				2400
Gln Gly Leu Ala Gln Asp Gly Ala Leu Tyr Lys Leu Pro Ala Gly Leu				
785	790	795	800	
gac ccg ctg ccc ttc ccc ggc ctc tcc aaa ctc aac ctc atg gcc gcc				2448
Asp Pro Leu Pro Phe Pro Gly Leu Ser Lys Leu Asn Leu Met Ala Ala				
801	806	811	816	
tcg ctg gag gtc gcg ccg acg gct tct cct act ggc cgg gcc ggt gcc				2496
Ser Leu Glu Val Ala Pro Thr Ala Ser Pro Thr Gly Arg Ala Gly Ala				
817	822	827	832	
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ctacagagac aaactgctga aacagaggtg atcagtgccg attaaaatgt gtggcatttt	360
aagtggatac ttgcagcacc tgaactcact gcaatagcaa taggaggtgg ct atg Met 1	415
aaa tta tta gag aag tat agt ata tac cac agt aac ttt ttg cca ctc Lys Leu Leu Glu Lys Tyr Ser Ile Tyr His Ser Asn Phe Leu Pro Leu 2 7 12 17	463
tca ctt aat act gca tct tta cat ttg ttt cct cgt gcc gaa ttc ggc Ser Leu Asn Thr Ala Ser Leu His Leu Phe Pro Arg Ala Glu Phe Gly 18 23 28 33	511
acg agg atc aca gga agc atg gga ccg caa ggc gcc ctg gga cca cct Thr Arg Ile Thr Gly Ser Met Gly Pro Gln Gly Ala Leu Gly Pro Pro 34 39 44 49	559
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acc caa ggt cca aga ggc ccc cct gga cca gca gga cct tca ggg gag Thr Gln Gly Pro Arg Gly Pro Pro Gly Pro Ala Gly Pro Ser Gly Glu 162 167 172 177	943
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178	183	188	193	
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Pro Pro Gly His Leu Gly Val Pro Gly Pro Gln Gly Pro Ser Gly Gln				
194	199	204	209	
cct gga tat tgt gac ccc tca tca tgt tct gcc tat ggt gtg aga gct				1087
Pro Gly Tyr Cys Asp Pro Ser Ser Cys Ser Ala Tyr Gly Val Arg Ala				
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ccc cat cca gat cag cca gag ttc acc cct gtc caa gat gag ctg gaa				1135
Pro His Pro Asp Gln Pro Glu Phe Thr Pro Val Gln Asp Glu Leu Glu				
226	231	236	241	
gcc atg gaa ctg tgg ggc cct gga gtc tga t agcctcagga gaaatttgaa				1186
Ala Met Glu Leu Trp Gly Pro Gly Val *				
242	247			
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tgctactttt ggggggcagg gctcatttca gcagcctaaa tctcctcctt ggataatggt				1306
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Met Ala Glu Cys  
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ccg aca ctc ggg gag gca gtc acc gac cac ccg gac cgc ctg tgg gcc 162  
Pro Thr Leu Gly Glu Ala Val Thr Asp His Pro Asp Arg Leu Trp Ala  
5 10 15 20

tgg gag aag ttc gtg tat ttg gac gag aag cag cac gcc tgg ctg ccc 210  
Trp Glu Lys Phe Val Tyr Leu Asp Glu Lys Gln His Ala Trp Leu Pro  
21 26 31 36

tta acc atc gag ata aag gat agg tta cag tta cgg gtg ctc ttg cgt 258  
Leu Thr Ile Glu Ile Lys Asp Arg Leu Gln Leu Arg Val Leu Leu Arg  
37 42 47 52

cgg gaa gac gtc gtc ctg ggg agg cct atg acc ccc acc cag ata ggc 306  
Arg Glu Asp Val Val Leu Gly Arg Pro Met Thr Pro Thr Gln Ile Gly  
53 58 63 68

cca agc ctg ctg cct atc atg tgg cag ctc tac cct gat gga cga tac 354  
Pro Ser Leu Leu Pro Ile Met Trp Gln Leu Tyr Pro Asp Gly Arg Tyr  
69 74 79 84

cga tcc tca gac tcc agt ttc tgg cgc tta gtg tac cac atc aag att 402  
Arg Ser Ser Asp Ser Ser Phe Trp Arg Leu Val Tyr His Ile Lys Ile  
85 90 95 100

gac ggc gtg gag gac atg ctt ctc gag ctg ctg cca gat gac tga tgt 450  
Asp Gly Val Glu Asp Met Leu Leu Glu Leu Leu Pro Asp Asp \*  
101 106 111

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 cccaattaac attgtatcat gctttctcat atcatatgct tctttgaaac atgaacttag 240  
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 ggagccccgc cgaggc atg agg gcc gtg ctc ccc cca gag gaa ggg atg 349  
 Met Arg Ala Val Leu Pro Pro Glu Glu Gly Met  
 1 5  
 gtt ttc ctg gtc ctg aag gac ttt ggt cca gag gag aat ttt gat gct 397  
 Val Phe Leu Val Leu Lys Asp Phe Gly Pro Glu Glu Asn Phe Asp Ala  
 12 17 22 27  
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 Ser Glu Glu Ala Ala Arg Gly Arg Asp Leu Arg Gly Arg Gly Arg Gly  
 28 33 38 43  
 acc cca cga gga gga agg aag ggt tta ctt ccc act cct gac gag ttc 493  
 Thr Pro Arg Gly Gly Arg Lys Gly Leu Leu Pro Thr Pro Asp Glu Phe  
 44 49 54 59  
 cct cgc ttt gaa gga ggg cgg aag cca gat tcc tgg gat gga aac aga 541  
 Pro Arg Phe Glu Gly Gly Arg Lys Pro Asp Ser Trp Asp Gly Asn Arg  
 60 65 70 75  
 gag cct ggg cca ggt cat gaa cat ttt cgt gat act ccc cgc cct gat 589  
 Glu Pro Gly Pro Gly His Glu His Phe Arg Asp Thr Pro Arg Pro Asp  
 76 81 86 91

cat ccc cct cac gac ggt cat tcc cca gcc agc aga gaa cgc tcc tct	637
His Pro Pro His Asp Gly His Ser Pro Ala Ser Arg Glu Arg Ser Ser	
92 97 102 107	
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Ser Leu Gln Gly Met Asp Met Ala Ser Leu Pro Pro Arg Lys Arg Pro	
108 113 118 123	
tgg cat gat ggc cca ggc act tct gag cac aga gag atg gag gcc cca	733
Trp His Asp Gly Pro Gly Thr Ser Glu His Arg Glu Met Glu Ala Pro	
124 129 134 139	
gga ggc cct tct gaa gac cga gga ggc aaa ggc cga ggg ggc cca gga	781
Gly Gly Pro Ser Glu Asp Arg Gly Gly Lys Gly Arg Gly Gly Pro Gly	
140 145 150 155	
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Pro Ala Gln Arg Val Pro Lys Ser Gly Arg Ser Ser Ser Leu Asp Gly	
156 161 166 171	
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Glu His His Asp Gly Tyr His Arg Asp Glu Pro Phe Gly Gly Pro Pro	
172 177 182 187	
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Gly Ser Gly Thr Pro Ser Arg Gly Gly Arg Ser Gly Ser Asn Trp Gly	
188 193 198 203	
aga ggg agt aac atg aac tct ggc ccg ccg agg cga gga gct tca cgg	973
Arg Gly Ser Asn Met Asn Ser Gly Pro Pro Arg Arg Gly Ala Ser Arg	
204 209 214 219	
ggt ggt gga agg ggt cgg tag aa gctggaactg agtaccctga ggccctctctg	1026
Gly Gly Gly Arg Gly Arg *	
220 225	
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<222> (147)..(3860)

<400> 873

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acccgggagc cctccgcacc cgcacc atg cag aag agc gtg cgc tac aac gag      173
                               Met Gln Lys Ser Val Arg Tyr Asn Glu
                               1                               5

ggg cac gcc ctg tac ctg gcc ttt ctg gcg cgc aag gag ggc acc aag      221
Gly His Ala Leu Tyr Leu Ala Phe Leu Ala Arg Lys Glu Gly Thr Lys
10                               15                               20                               25

cgc ggc ttc ctg agt aag aag acg gcc gag gcg agc cgc tgg cac gag      269
Arg Gly Phe Leu Ser Lys Lys Thr Ala Glu Ala Ser Arg Trp His Glu
26                               31                               36                               41

aag tgg ttc gcc ctc tac cag aat gtg ctc ttc tac ttc gag ggc gag      317
Lys Trp Phe Ala Leu Tyr Gln Asn Val Leu Phe Tyr Phe Glu Gly Glu
42                               47                               52                               57

cag agc tgc cgc ccg gcg ggc atg tac ctc ctg gag ggc tgc agc tgc      365
Gln Ser Cys Arg Pro Ala Gly Met Tyr Leu Leu Glu Gly Cys Ser Cys
58                               63                               68                               73

gaa cga acg ccc gcg cca ccc agg gcc ggc gcc ggg cag gga ggc gtc      413
Glu Arg Thr Pro Ala Pro Pro Arg Ala Gly Ala Gly Gln Gly Gly Val
74                               79                               84                               89

cga gac gcg ctg gac aag cag tat tac ttt act gtt ctt ttt ggc cat      461
Arg Asp Ala Leu Asp Lys Gln Tyr Tyr Phe Thr Val Leu Phe Gly His
90                               95                               100                               105

gaa ggt cag aag cca ctg gag ctg cgc tgt gag gag gag cag gat ggt      509
Glu Gly Gln Lys Pro Leu Glu Leu Arg Cys Glu Glu Glu Gln Asp Gly
106                               111                               116                               121

aaa gag tgg atg gag gcc att cac caa gcc agt tat gca gac att ttg      557
Lys Glu Trp Met Glu Ala Ile His Gln Ala Ser Tyr Ala Asp Ile Leu
122                               127                               132                               137

att gag agg gaa gta tta atg cag aag tac att cat cta gtt cag atc      605
Ile Glu Arg Glu Val Leu Met Gln Lys Tyr Ile His Leu Val Gln Ile
138                               143                               148                               153

gta gag aca gaa aaa att gca gct aac caa ctc cga cat caa ctt gaa      653
Val Glu Thr Glu Lys Ile Ala Ala Asn Gln Leu Arg His Gln Leu Glu
154                               159                               164                               169

gat caa gac aca gaa atc gaa agg ctt aaa tca gag att att gct ctt      701
Asp Gln Asp Thr Glu Ile Glu Arg Leu Lys Ser Glu Ile Ile Ala Leu
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aat aaa acc aaa gaa cga atg cga cct tac caa agc aac caa gaa gac				749
Asn Lys Thr Lys Glu Arg Met Arg Pro Tyr Gln Ser Asn Gln Glu Asp				
186	191	196	201	
gaa gat cca gac atc aag aag att aaa aag gtt cag agc ttc atg cga				797
Glu Asp Pro Asp Ile Lys Lys Ile Lys Lys Val Gln Ser Phe Met Arg				
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gga tgg ttg tgc aga agg aaa tgg aag acc atc gtg cag gat tac att				845
Gly Trp Leu Cys Arg Arg Lys Trp Lys Thr Ile Val Gln Asp Tyr Ile				
218	223	228	233	
tgt tct cct cat gct gaa agt atg agg aag aga aac cag att gtg ttc				893
Cys Ser Pro His Ala Glu Ser Met Arg Lys Arg Asn Gln Ile Val Phe				
234	239	244	249	
acc atg gtg gag gca gag tca gag tac gtt cac cag ctc tac atc ctg				941
Thr Met Val Glu Ala Glu Ser Glu Tyr Val His Gln Leu Tyr Ile Leu				
250	255	260	265	
gtc aat ggc ttt ctc cgg ccc ctg cgt atg gcc gcc agc tcc aag aag				989
Val Asn Gly Phe Leu Arg Pro Leu Arg Met Ala Ala Ser Ser Lys Lys				
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ccc ccc atc agc cac gac gac gtc agc agt att ttt ctt aac agt gaa				1037
Pro Pro Ile Ser His Asp Asp Val Ser Ser Ile Phe Leu Asn Ser Glu				
282	287	292	297	
aca atc atg ttt ctt cat gaa ata ttt cat caa gga cta aag gca agg				1085
Thr Ile Met Phe Leu His Glu Ile Phe His Gln Gly Leu Lys Ala Arg				
298	303	308	313	
ata gca aac tgg ccc act tta att tta gct gat ctg ttt gat att ttg				1133
Ile Ala Asn Trp Pro Thr Leu Ile Leu Ala Asp Leu Phe Asp Ile Leu				
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ctc ccc atg ctg aac att tat caa gaa ttt gtg cgt aat cac cag tac				1181
Leu Pro Met Leu Asn Ile Tyr Gln Glu Phe Val Arg Asn His Gln Tyr				
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agc ctg caa gtt ctc gcc aat tgt aag caa aac aga gat ttt gac aaa				1229
Ser Leu Gln Val Leu Ala Asn Cys Lys Gln Asn Arg Asp Phe Asp Lys				
346	351	356	361	
ctc tta aaa cag tat gaa gcc aat cca gcc tgt gag ggg agg atg ctg				1277
Leu Leu Lys Gln Tyr Glu Ala Asn Pro Ala Cys Glu Gly Arg Met Leu				
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gag aca ttc ttg acc tat ccc atg ttt cag atc ccc aga tat atc atc				1325
Glu Thr Phe Leu Thr Tyr Pro Met Phe Gln Ile Pro Arg Tyr Ile Ile				
378	383	388	393	
aca ctc cat gag ctc ctt gct cac aca ccc cat gag cat gtg gaa agg				1373
Thr Leu His Glu Leu Leu Ala His Thr Pro His Glu His Val Glu Arg				
394	399	404	409	

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Lys Ser Leu Glu Phe Ala Lys Ser Lys Leu Glu Glu Leu Ser Arg Val	
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426 431 436 441	
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Gln Thr Phe Ile Arg Gln Gly Ser Leu Ile Gln Val Pro Ser Val Glu	
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Arg Gly Lys Leu Ser Lys Val Arg Leu Gly Ser Leu Ser Leu Lys Lys	
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Glu Gly Glu Arg Gln Cys Phe Leu Phe Thr Lys His Phe Leu Ile Cys	
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522 527 532 537	
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Asp Asp Ser Lys Gly Ser Gly Gln Val Phe Gly His Leu Asp Phe Lys	
538 543 548 553	
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Ile Val Val Glu Pro Pro Asp Arg Ala Ala Phe Thr Val Val Leu Leu	
554 559 564 569	
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Ala Pro Ser Arg Gln Glu Lys Ala Ala Trp Met Ser Asp Ile Ser Gln	
570 575 580 585	
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Cys Val Asp Asn Ile Arg Cys Asn Gly Leu Met Thr Ile Val Phe Glu	
586 591 596 601	
gag aat tcc aaa gtc act gtg cca cat atg att aag tct gat gcc cgt	1997
Glu Asn Ser Lys Val Thr Val Pro His Met Ile Lys Ser Asp Ala Arg	
602 607 612 617	
ctt cat aaa gac gac act gac att tgc ttc agt aaa aca ctc aac tcc	2045
Leu His Lys Asp Asp Thr Asp Ile Cys Phe Ser Lys Thr Leu Asn Ser	
618 623 628 633	

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Cys Lys Val Pro Gln Ile Arg Tyr Ala Ser Val Glu Arg Leu Leu Glu	
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Arg Leu Thr Asp Leu Arg Phe Leu Ser Ile Asp Phe Leu Asn Thr Phe	
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Leu His Thr Tyr Arg Ile Phe Thr Thr Ala Ala Val Val Leu Gly Lys	
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Leu Ser Asp Ile Tyr Lys Arg Pro Phe Thr Ser Ile Pro Val Arg Ser	
682 687 692 697	
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Leu Glu Leu Phe Phe Ala Thr Ser Gln Asn Asn Arg Gly Glu His Leu	
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gtg gat ggc aaa tcc cca cgt ctg tgt cgc aaa ttc tct tcc ccg cca	2333
Val Asp Gly Lys Ser Pro Arg Leu Cys Arg Lys Phe Ser Ser Pro Pro	
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Pro Leu Ala Val Ser Arg Thr Ser Ser Pro Val Arg Ala Arg Lys Leu	
730 735 740 745	
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Ser Leu Thr Ser Pro Leu Asn Ser Lys Ile Gly Ala Leu Asp Leu Thr	
746 751 756 761	
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Ser Pro Glu Gln Ser Pro Gly Thr Val Glu Glu Asn Val Asp Asn Pro	
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Leu Glu Ser Ala Pro Ala Asp Arg Ala Gly Val Glu Ser Ser Pro Ala	
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Ala Asp Thr Thr Glu Leu Ser Pro Cys Arg Ser Pro Ser Thr Pro Arg	
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tgc	tct	gtt	tca	ccg	gct	tct	gct	ttt	gca	ata	gcc	aca	gct	gca	gca	2813	
Cys	Ser	Val	Ser	Pro	Ala	Ser	Ala	Phe	Ala	Ile	Ala	Thr	Ala	Ala	Ala		
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gga	cat	ggg	agt	cca	cca	ggc	ttt	aac	aac	acc	gag	aga	aca	tgt	gat	2861	
Gly	His	Gly	Ser	Pro	Pro	Gly	Phe	Asn	Asn	Thr	Glu	Arg	Thr	Cys	Asp		
890					895					900					905		
aaa	gag	ttt	att	ata	cgg	aga	acg	gct	acc	aat	cga	gtt	ctg	aac	gtc	2909	
Lys	Glu	Phe	Ile	Ile	Arg	Arg	Thr	Ala	Thr	Asn	Arg	Val	Leu	Asn	Val		
906					911					916					921		
ctc	cgt	cac	tgg	gtc	tca	aag	cac	gca	cag	gat	ttc	gaa	ctc	aac	aat	2957	
Leu	Arg	His	Trp	Val	Ser	Lys	His	Ala	Gln	Asp	Phe	Glu	Leu	Asn	Asn		
922					927					932					937		
gaa	cta	aag	atg	aat	gtc	cta	aat	ttg	cta	gaa	gaa	gtt	ttg	cga	gac	3005	
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Pro	Asp	Leu	Leu	Pro	Gln	Glu	Arg	Lys	Ala	Ala	Ala	Asn	Ile	Leu	Arg		
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Ala	Leu	Ser	Gln	Asp	Asp	Gln	Asp	Asp	Ile	His	Leu	Lys	Leu	Glu	Asp		
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ata	att	caa	atg	act	gac	tgc	atg	aag	gcc	gaa	tgc	ttt	gag	tcc	ttg	3149	
Ile	Ile	Gln	Met	Thr	Asp	Cys	Met	Lys	Ala	Glu	Cys	Phe	Glu	Ser	Leu		
986					991					996					1001		
tcg	gcc	atg	gag	ctg	gca	gaa	cag	atc	acc	ctc	ctg	gac	cat	gtc	att	3197	
Ser	Ala	Met	Glu	Leu	Ala	Glu	Gln	Ile	Thr	Leu	Leu	Asp	His	Val	Ile		
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Phe	Arg	Ser	Ile	Pro	Tyr	Glu	Glu	Phe	Leu	Gly	Gln	Gly	Trp	Met	Lys		
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ctg	gat	aaa	aac	gaa	aga	act	cct	tac	att	atg	aaa	acc	agc	caa	cac	3293	
Leu	Asp	Lys	Asn	Glu	Arg	Thr	Pro	Tyr	Ile	Met	Lys	Thr	Ser	Gln	His		
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ttc	aat	gac	atg	agt	aac	ctg	gtg	gcc	tcc	cag	ata	atg	aac	tat	gct	3341	
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Asp	Ile	Cys	Arg	Cys	Leu	His	Asn	Tyr	Asn	Gly	Val	Leu	Glu	Ile	Thr		

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Ser Ala Leu Asn Arg Ser Ala Ile Tyr Arg Leu Lys Lys Thr Trp Ala				
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Lys Val Ser Lys Gln Thr Lys Ala Leu Met Asp Lys Leu Gln Lys Thr				
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Val Ser Ser Glu Gly Arg Phe Lys Asn Leu Arg Glu Thr Leu Lys Asn				
1130	1135	1140	1145	
tgt aac cct cct gca gtt cct tat ctt ggg atg tac ttg aca gac ctg				3629
Cys Asn Pro Pro Ala Val Pro Tyr Leu Gly Met Tyr Leu Thr Asp Leu				
1146	1151	1156	1161	
gca ttt att gaa gaa gga aca cca aac ttt act gag gaa ggc ctt gtc				3677
Ala Phe Ile Glu Glu Gly Thr Pro Asn Phe Thr Glu Glu Gly Leu Val				
1162	1167	1172	1177	
aat ttc tcc aaa atg aga atg ata tca cac atc atc aga gag ata cgc				3725
Asn Phe Ser Lys Met Arg Met Ile Ser His Ile Ile Arg Glu Ile Arg				
1178	1183	1188	1193	
cag ttc cag cag act tcc tac aga ata gat cat cag cca aag gtc gca				3773
Gln Phe Gln Gln Thr Ser Tyr Arg Ile Asp His Gln Pro Lys Val Ala				
1194	1199	1204	1209	
cag tac ttg ctt gac aaa gac ctt atc ata gat gaa gat acg cta tat				3821
Gln Tyr Leu Leu Asp Lys Asp Leu Ile Ile Asp Glu Asp Thr Leu Tyr				
1210	1215	1220	1225	
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Gly Gly Leu Ala Ser Cys Gly Ala Ala Cys Cys Thr His Pro Leu Asp		
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Leu Leu Lys Val His Leu Gln Thr Gln Gln Glu Val Lys Leu Arg Met		
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Thr Gly Met Ala Leu Arg Val Val Arg Thr Asp Gly Ile Leu Ala Leu		
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Tyr Ser Gly Leu Ser Ala Ser Leu Cys Arg Gln Met Thr Tyr Ser Leu		
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Ser Gln Gly Pro Leu Pro Phe His Glu Lys Val Leu Leu Gly Ser Val		
93 98 103 108		
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Ser Gly Leu Ala Gly Gly Phe Val Gly Thr Pro Ala Asp Leu Val Asn		
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Val Arg Met Gln Asn Asp Val Lys Leu Pro Gln Gly Gln Arg Arg Asn		
125 130 135 140		
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141 146 151 156		
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Val Leu Ser Thr Gly Tyr Leu Ser Asp Asn Ile Phe Thr His Phe Val		
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Ala Ser Phe Ile Ala Gly Gly Cys Ala Thr Phe Leu Cys Gln Pro Leu		
205 210 215 220		

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221 226 231 236	
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Val Phe His Cys Ala Val Glu Thr Ala Lys Leu Gly Pro Leu Ala Phe	
237 242 247 252	
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Tyr Lys Gly Leu Val Pro Ala Gly Ile Arg Leu Ile Pro His Thr Val	
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 Met Ala Gly Leu Glu Ala Trp Leu Ser Gln Asn Phe Ser  
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 Leu His Gln Pro Gln Ser Arg Val Arg Val Arg Arg Ala Ser Ile Ser  
 14 19 24 29  
 gaa ccc agt gat acg gac ccg gag ccc cga act ctg aac ccc tct ccg 264  
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 Ala Gly Trp Phe Val Gln Gln His Pro Glu Leu Glu Leu Met Ser Ser  
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 78 83 88 93  
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 Met Ser Glu Glu Val Arg Ala Glu Pro Gln Glu Glu Glu Glu Lys  
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 Glu Gly Lys Glu Glu Lys Glu Glu Gly Glu Met Ala Pro His Arg Glu  
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713

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 Met Ala Gly Tyr Leu Ser Glu Ser Asp Phe Val Met Val Glu Glu Gly  
 1 5 10 15  
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 Phe Ser Thr Arg Asp Leu Leu Lys Glu Leu Thr Leu Gly Ala Ser Gln  
 17 22 27 32  
 gcc acc acg gac gag gta gct gcc ttc ttc gtg gct gac ctg ggt gcc 503  
 Ala Thr Thr Asp Glu Val Ala Ala Phe Phe Val Ala Asp Leu Gly Ala  
 33 38 43 48  
 ata gtg agg aag cac ttt tgc ttt ctg aag tgc ctg cca cga gtc cgg 551  
 Ile Val Arg Lys His Phe Cys Phe Leu Lys Cys Leu Pro Arg Val Arg  
 49 54 59 64  
 ccc ttt tat gct gtc aag tgc aac agc agc cca ggt gtg ctg aag gtt 599  
 Pro Phe Tyr Ala Val Lys Cys Asn Ser Ser Pro Gly Val Leu Lys Val  
 65 70 75 80  
 ctg gcc cag ctg ggg ctg ggc ttt agc tgt gcc aac aag gca gag atg 647  
 Leu Ala Gln Leu Gly Leu Gly Phe Ser Cys Ala Asn Lys Ala Glu Met  
 81 86 91 96  
 gag ttg gtc cag cat att gga atc cct gcc agt aag atc atc tgc gcc 695  
 Glu Leu Val Gln His Ile Gly Ile Pro Ala Ser Lys Ile Ile Cys Ala  
 97 102 107 112

aac ccc tgt aag caa att gca cag atc aaa tat gct gcc aag cat ggg	743
Asn Pro Cys Lys Gln Ile Ala Gln Ile Lys Tyr Ala Ala Lys His Gly	
113 118 123 128	
atc cag ctg ctg agc ttt gac aat gag atg gag ctg gca aag gtg gta	791
Ile Gln Leu Leu Ser Phe Asp Asn Glu Met Glu Leu Ala Lys Val Val	
129 134 139 144	
aag agc cac ccc agt gcc aag atg gtt ctg tgc att gct acc gat gac	839
Lys Ser His Pro Ser Ala Lys Met Val Leu Cys Ile Ala Thr Asp Asp	
145 150 155 160	
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Ser His Ser Leu Ser Cys Leu Ser Leu Lys Phe Gly Val Ser Leu Lys	
161 166 171 176	
tcc tgc aga cac ctg ctt gaa aat gcg aag aag cac cat gtg gag gtg	935
Ser Cys Arg His Leu Leu Glu Asn Ala Lys Lys His His Val Glu Val	
177 182 187 192	
gtg ggt gtg agt ttt cac att ggc agt ggc tgt cct gac cct cag gcc	983
Val Gly Val Ser Phe His Ile Gly Ser Gly Cys Pro Asp Pro Gln Ala	
193 198 203 208	
tat gct cag tcc atc gca gac gcc cgg ctc gtg ttt gaa atg ggc acc	1031
Tyr Ala Gln Ser Ile Ala Asp Ala Arg Leu Val Phe Glu Met Gly Thr	
209 214 219 224	
gag ctg ggt cac aag atg cac gtt ctg gac ctt ggt ggt ggc ttc cct	1079
Glu Leu Gly His Lys Met His Val Leu Asp Leu Gly Gly Gly Phe Pro	
225 230 235 240	
ggc aca gaa ggg gcc aaa gtg aga ttt gaa gag att gct tcc gtg atc	1127
Gly Thr Glu Gly Ala Lys Val Arg Phe Glu Glu Ile Ala Ser Val Ile	
241 246 251 256	
aac tca gcc ttg gac ctg tac ttc cca gag ggc tgt ggc gtg gac atc	1175
Asn Ser Ala Leu Asp Leu Tyr Phe Pro Glu Gly Cys Gly Val Asp Ile	
257 262 267 272	
ttt gct gag ctg ggg cgc tac tac gtg acc tcg gcc ttc act gtg gca	1223
Phe Ala Glu Leu Gly Arg Tyr Tyr Val Thr Ser Ala Phe Thr Val Ala	
273 278 283 288	
gtc agc atc att gcc aag aag gag gtt ctg cta gac cag cct ggc agg	1271
Val Ser Ile Ile Ala Lys Lys Glu Val Leu Leu Asp Gln Pro Gly Arg	
289 294 299 304	
gag gag gaa aat ggt tcc acc tcc aag acc atc gtg tac cac ctt gat	1319
Glu Glu Glu Asn Gly Ser Thr Ser Lys Thr Ile Val Tyr His Leu Asp	
305 310 315 320	
gag ggc gtg tat ggg atc ttc aac tca gtc ctg ttt gac aac atc tgc	1367
Glu Gly Val Tyr Gly Ile Phe Asn Ser Val Leu Phe Asp Asn Ile Cys	
321 326 331 336	
cct acc ccc atc ctg cag aag aaa cca tcc acg gag cag ccc ctg tac	1415

Pro Thr Pro Ile Leu Gln Lys Lys Pro Ser Thr Glu Gln Pro Leu Tyr	
337 342 347 352	
agc agc agc ctg tgg ggc ccg gcg gtt gat ggc tgt gat tgc gtg gct	1463
Ser Ser Ser Leu Trp Gly Pro Ala Val Asp Gly Cys Asp Cys Val Ala	
353 358 363 368	
gag ggc ctg tgg ctg ccg caa cta cac gta ggg gac tgg ctg gtc ttt	1511
Glu Gly Leu Trp Leu Pro Gln Leu His Val Gly Asp Trp Leu Val Phe	
369 374 379 384	
gac aac atg ggc gcc tac act gtg ggc atg ggt tcc ccc ttt tgg ggg	1559
Asp Asn Met Gly Ala Tyr Thr Val Gly Met Gly Ser Pro Phe Trp Gly	
385 390 395 400	
acc cag gcc tgc cac atc acc tat gcc atg tcc cgg gtg gcc tgg gaa	1607
Thr Gln Ala Cys His Ile Thr Tyr Ala Met Ser Arg Val Ala Trp Glu	
401 406 411 416	
gcg ctg cga agg cag ctg atg gct gca gaa cag gag gat gac gtg gag	1655
Ala Leu Arg Arg Gln Leu Met Ala Ala Glu Gln Glu Asp Asp Val Glu	
417 422 427 432	
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Gly Val Cys Lys Pro Leu Ser Cys Gly Trp Glu Ile Thr Asp Thr Leu	
433 438 443 448	
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Cys Val Gly Pro Val Phe Thr Pro Ala Ser Ile Met *	
449 454 459	
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aacataaatc ctgttccttc cagctgtgtc tgccctctct gcagtgaag gggcctggtc	1992
agccaggtgt ggggggtgttc ttgggggtctc ctttgggtctc cttccacact ttgtaaatat	2052
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 <211> 1057  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (440)..(937)

<400> 878  
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gccgtaccgg	gcccgcgggg	tgccctcccg	gccccgcctg	ccccgaccgg	gggggcgccc	180
gttcgcgcgc	ccgccgcgcg	cggcgcgtag	cgaacgcggg	gccgtgtggc	ggccccgagcc	240
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ggccccctgga	ggacgagcgg	gcgaacgggc	tgtgagcccc	acccccagct	ccatccaat	360
caccgtccct	ccctccgggg	gctgggcgga	cgggctgcac	tccaagcagc	tagctcctgc	420
actaggctct	cagccaggg	atg atg cgc	tgc tgc cgc	cgc cgc tgc	tgc tgc tgc	472
		Met Met Arg	Cys Cys Arg	Arg Arg Cys	Cys Cys Cys	

cgg caa cca ccc cat gcc ctg agg ccg ttg ctg ttg ctg ccc ctc gtc 520  
 Arg Gln Pro Pro His Ala Leu Arg Pro Leu Leu Leu Leu Pro Leu Val  
 12 17 22 27

ctt tta cct ccc ctg gca gca gct gca gcg ggc cca aac cga tgt gac 568  
Leu Leu Pro Pro Leu Ala Ala Ala Ala Ala Gly Pro Asn Arg Cys Asp  
28 33 38 43

acc ata tac cag ggc ttc gcc gag tgt ctc atc cgc ttg ggg gac agc 616  
Thr Ile Tyr Gln Gly Phe Ala Glu Cys Leu Ile Arg Leu Gly Asp Ser  
44 49 54 59

atg ggc cgc gga ggc gag ctg gag acc atc tgc agg tct tgg aat gac 664  
Met Gly Arg Gly Gly Glu Leu Glu Thr Ile Cys Arg Ser Trp Asn Asp  
60 65 70 75

ttc cat gcc tgt gcc tct cag gtc ctg tca ggc tgt ccg gag gag gca 712  
Phe His Ala Cys Ala Ser Gln Val Leu Ser Gly Cys Pro Glu Glu Ala  
76 81 86 91

gct gca gtg tgg gaa tca cta cag caa gaa gct cgc cag gcc ccc cgt 760  
Ala Ala Val Trp Glu Ser Leu Gln Gln Glu Ala Arg Gln Ala Pro Arg  
92 97 102 107

ccg aat aac ttg cac act ctg tgc ggt gcc ccg gtg cat gtt cgg gag 808  
Pro Asn Asn Leu His Thr Leu Cys Gly Ala Pro Val His Val Arg Glu  
108 113 118 123

cgc ggc aca ggc tcc gaa acc aac cag gag acg ctg cgg gct aca gcg 856  
 Arg Gly Thr Gly Ser Glu Thr Asn Gln Glu Thr Leu Arg Ala Thr Ala  
 124 129 134 139

cct gca ctc ccc atg gcc cct gcg ccc cca ctg ctg gcg gct gct ctg 904  
Pro Ala Leu Pro Met Ala Pro Ala Pro Pro Leu Leu Ala Ala Ala Leu  
140 145 150 155

gct ctg gcc tac ctc ctg agg cct ctg gcc tag cttgttgg gttgggtagc 955  
Ala Leu Ala Tyr Leu Leu Arg Pro Leu Ala \*  
156 161 166

agcgcccgta cctccagccc tgctctggcg gtggttggtcc aggcctctgca gagcgagca 1015

gggcttttca ttaaaggat ttatattgt aaaaaaaaaa aa 1057

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<211> 1857

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (58)..(330)

<400> 879

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Met His Thr Asp Pro Asp Tyr Ser Ala Ala Tyr Val Val Ile Glu Thr

1

5

10

15

gat gca gaa gat gga atc aag ggg tgt gga att acc ttc act ctg gga 153

Asp Ala Glu Asp Gly Ile Lys Gly Cys Gly Ile Thr Phe Thr Leu Gly

17

22

27

32

aaa ggc act gaa gtt gat tgg tcc aga aaa ggg cgt ggt gca cct ggc 201

Lys Gly Thr Glu Val Asp Trp Ser Arg Lys Gly Arg Gly Ala Pro Gly

33

38

43

48

gac agc ggc cgt cct aaa cgc ggt gtg gga ctt gtg ggc caa gca gga 249

Asp Ser Gly Arg Pro Lys Arg Gly Val Gly Leu Val Gly Gln Ala Gly

49

54

59

64

ggg aaa gcc tgt ctg gaa gtt act tgt gga cat gga tcc cag gat gct 297

Gly Lys Ala Cys Leu Glu Val Thr Cys Gly His Gly Ser Gln Asp Ala

65

70

75

80

ggt atc ctg cat aga ttt cag gta cat cac tga tgtcctga ctgaggagga 348

Gly Ile Leu His Arg Phe Gln Val His His \*

81

86

91

tgccctagaa atactgcaga aaggtcaaatt tggtaaaaaa gaaagagaga agcaaagtct 408

ggcacaagga taccctgctt acacgacatc gtgcgcctgg ctgggggtact cagatgacac 468

gttgaagcag ctctgtgccc aggcgctgaa ggatggctgg accagggttta aagtaaagggt 528

gggtgctgat ctccaggatg acatgcgaag atgccaaatc atccgagaca tgattggacc 588

ggaaaagact ttgatgatgg atgccaaacca gcgctgggat gtgcctgagg cgggtggagtg 648

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gatggccaaa aagtttgaaa ttctgtttg ccccatgct ggtggagttg gcctctgtga	948
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aaagaaacac cagtatccag atggtgaagt ttggaagaaa ctcttcctg ctcaagaaaa	1188
ttaagtgtc agccccaaca acttttttct ttctgaagtg aaagggtta aaatttcttg	1248
gaaatagttt taaaaaatg gatttaaaaa atcctaccga tcaagatgag ttcagctaga	1308
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caaccctaa agactgacaa tctcttcaa gtcctttga aagcacccta aacagccatt	1428
tccattttta tagttggatg cggattgtac cttcaatct gaaagtcttc agctttgaag	1488
tcatcaattt tctcaacttt tcgaagaatc ctgagctttg ggaaaggctt gggttctcgc	1548
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ctcctcatgt ccatgaaaca agtacacagg atgtgatcaa caaagttcta tttacagga	1668
gtatgatcct gtcgatacct tgccgtagtt atgtaacatg attggagcgc aaccagctgt	1728
tctcttgacc acagatcgag agtgaggggt atttgtgac attacacagc atcaggagcc	1788
tggtgcctca tcagggtgaa gttcttataa ccactcttgg caaatttatt aaagacagga	1848
acacagtca	1857

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<211> 1405

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (366)..(1289)

<400> 880

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tgtgcgagga cgcgcggcca gcctgcggga gccgcagtcg gcggaggaga aaggaggcgg	180
ctcccggtat cccgaccccc tccccctct cttcttcccc cacttccagc cgcgcggcgg	240

ccccgcgttt ctcgaaggcc ccagcccggc tcagtcggcc gagagcgagg gaggagcccc	300
ccgacccagg tagacgttac atccaagagg aaataatcca ggcaaggaag cacaagctga	360
tcaag     atg tgt agt tct gtg gct gcc aag ttg tgg ttt ttg aca gat Met Cys Ser Ser Val Ala Ala Lys Leu Trp Phe Leu Thr Asp 1                                 5                                 10	407
cgt cgc atc agg gaa gac tat cct caa aaa gag att tta cga gca ttg Arg Arg Ile Arg Glu Asp Tyr Pro Gln Lys Glu Ile Leu Arg Ala Leu 15                                 20                                 25                                 30	455
aag gcc aaa tgt tgt gag gag gaa ctg gac ttt agg gct gtg gtg atg Lys Ala Lys Cys Cys Glu Glu Glu Leu Asp Phe Arg Ala Val Val Met 31                                 36                                 41                                 46	503
gat gag gtg gtg ctg aca atc gag caa gga aac ctg ggt ctg cgg atc Asp Glu Val Val Leu Thr Ile Glu Gln Gly Asn Leu Gly Leu Arg Ile 47                                 52                                 57                                 62	551
aat gga gag cta atc act gcc tac cca caa gtg gtg gta gtc aga gta Asn Gly Glu Leu Ile Thr Ala Tyr Pro Gln Val Val Val Val Arg Val 63                                 68                                 73                                 78	599
cca acc cct tgg gtg caa agt gat agt gac atc act gtt ttg cgc cat Pro Thr Pro Trp Val Gln Ser Asp Ser Asp Ile Thr Val Leu Arg His 79                                 84                                 89                                 94	647
cta gag aag atg gga tgt cgg tta atg aac cga cct caa gcc atc ctg Leu Glu Lys Met Gly Cys Arg Leu Met Asn Arg Pro Gln Ala Ile Leu 95                                 100                                 105                                 110	695
aac tgc gtt aat aag ttc tgg aca ttt caa gag ttg gct ggc cat ggt Asn Cys Val Asn Lys Phe Trp Thr Phe Gln Glu Leu Ala Gly His Gly 111                                 116                                 121                                 126	743
gtt cct ctg ccg gat act ttc tct tat ggt ggc cac gaa aat ttt gct Val Pro Leu Pro Asp Thr Phe Ser Tyr Gly Gly His Glu Asn Phe Ala 127                                 132                                 137                                 142	791
aaa atg att gat gag gct gaa gtt ctg gag ttc cca atg gta gta aag Lys Met Ile Asp Glu Ala Glu Val Leu Glu Phe Pro Met Val Val Lys 143                                 148                                 153                                 158	839
aat acg cgg ggt cac aga ggt aaa gct gtt ttc ttg gct cga gat aag Asn Thr Arg Gly His Arg Gly Lys Ala Val Phe Leu Ala Arg Asp Lys 159                                 164                                 169                                 174	887
cac cat ttg gct gat cta agc cat ctt att cgc cat gaa gcg cca tac His His Leu Ala Asp Leu Ser His Leu Ile Arg His Glu Ala Pro Tyr 175                                 180                                 185                                 190	935
ctg ttc cag aag tat gtt aaa gag tct cat gga cgg gat gta cgt gtc Leu Phe Gln Lys Tyr Val Lys Glu Ser His Gly Arg Asp Val Arg Val 191                                 196                                 201                                 206	983



att gtc gtg gga ggc cgt gtg gtt ggc acc atg tta cgt tgt tca aca	1031
Ile Val Val Gly Gly Arg Val Val Gly Thr Met Leu Arg Cys Ser Thr	
207 212 217 222	
gat ggg aga atg caa agc aac tgc tca tta ggt ggt gtg ggg atg atg	1079
Asp Gly Arg Met Gln Ser Asn Cys Ser Leu Gly Gly Val Gly Met Met	
223 228 233 238	
tgc tca ttg agt gaa caa ggg aag cag cta gct atc cag gtg tct aat	1127
Cys Ser Leu Ser Glu Gln Gly Lys Gln Leu Ala Ile Gln Val Ser Asn	
239 244 249 254	
atc ctg ggg atg gat gtg tgt ggc att gac ctg ctg atg aaa gat gac	1175
Ile Leu Gly Met Asp Val Cys Gly Ile Asp Leu Leu Met Lys Asp Asp	
255 260 265 270	
ggc tcc ttc tgc gtc tgt gag gcc aat gca aat cct ttt cag gag cca	1223
Gly Ser Phe Cys Val Cys Glu Ala Asn Ala Asn Pro Phe Gln Glu Pro	
271 276 281 286	
aaa aaa caa ata caa aca aac aaa aaa ata ccc aga gaa aaa act ttc	1271
Lys Lys Gln Ile Gln Thr Asn Lys Lys Ile Pro Arg Glu Lys Thr Phe	
287 292 297 302	
ctt ctt ccc cct tcc tga tgatga gtgagaagta ttgagaactt tcgggggtcag	1325
Leu Leu Pro Pro Ser *	
303 308	
tgcccttccct aactcccctt ccccaataat gcagctgtat aatgaatggg taatgcaccg	1385
gttttgatttc aggcacagcc	1405

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 <211> 2412  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (67)..(1395)

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Met Gly Pro Pro Met Glu His Gly Trp Ser Tyr Ala Arg Ala	
1 5 10	
ggg ggc agc tct cgg ggc tgc tgg tat tac ctg cgc tac ttc ttc ctc	156
Gly Gly Ser Ser Arg Gly Cys Trp Tyr Tyr Leu Arg Tyr Phe Phe Leu	
15 20 25 30	
ttc gtc tcc ctc atc caa ttc ctc atc atc ctg ggg ctc gtg ctc ttc	204
Phe Val Ser Leu Ile Gln Phe Leu Ile Ile Leu Gly Leu Val Leu Phe	

31	36	41	46	
atg gtc tat ggc aac	gtg cac gtg agc aca	gag tcc aac ctg cag gcc		252
Met Val Tyr Gly Asn	Val His Val Ser Thr	Glu Ser Asn Leu Gln Ala		
47	52	57	62	
acc gag cgc cga gcc	gag ggc cta tac agt	cag ctc cta ggg ctc acg		300
Thr Glu Arg Arg Ala	Glu Gly Leu Tyr Ser	Gln Leu Leu Gly Leu Thr		
63	68	73	78	
gcc tcc cag tcc aac	ttg acc aag gag ctc	aac ttc acc acc cgc gcc		348
Ala Ser Gln Ser Asn	Leu Thr Lys Glu Leu	Asn Phe Thr Thr Arg Ala		
79	84	89	94	
aag gat gcc atc atg	cag atg tgg ctg aat	gct cgc cgc gac ctg gac		396
Lys Asp Ala Ile Met	Gln Met Trp Leu Asn	Ala Arg Arg Asp Leu Asp		
95	100	105	110	
cgc atc aat gcc agc	ttc cgc cag tgc cag	ggt gac cgg gtc atc tac		444
Arg Ile Asn Ala Ser	Phe Arg Gln Cys Gln	Gly Asp Arg Val Ile Tyr		
111	116	121	126	
acg aac aat cag agg	tac atg gct gcc atc	atc ttg agt gag aag caa		492
Thr Asn Asn Gln Arg	Tyr Met Ala Ala Ile	Ile Leu Ser Glu Lys Gln		
127	132	137	142	
tgc aga gat caa ttc	aag gac atg aac aag	agc tgc gat gcc ttg ctc		540
Cys Arg Asp Gln Phe	Lys Asp Met Asn Lys	Ser Cys Asp Ala Leu Leu		
143	148	153	158	
ttc atg ctg aat cag	aag gtg aag acg ctg	gag gtg gag ata gcc aag		588
Phe Met Leu Asn Gln	Lys Val Lys Thr Leu	Glu Val Glu Ile Ala Lys		
159	164	169	174	
gag aag acc att tgc	act aag gat aag gaa	agc gtg ctg ctg aac aaa		636
Glu Lys Thr Ile Cys	Thr Lys Asp Lys Glu	Ser Val Leu Leu Asn Lys		
175	180	185	190	
cgc gtg gcg gag gaa	cag ctg gtt gaa tgc	gtg aaa acc cgg gag ctg		684
Arg Val Ala Glu Glu	Gln Leu Val Glu Cys	Val Lys Thr Arg Glu Leu		
191	196	201	206	
cag cac caa gag cgc	cag ctg gcc aag gag	caa ctg caa aag gtg caa		732
Gln His Gln Glu Arg	Gln Leu Ala Lys Glu	Gln Leu Gln Lys Val Gln		
207	212	217	222	
gcc ctc tgc ctg ccc	ctg gac aag gac aag	ttt gag atg gac ctt cgt		780
Ala Leu Cys Leu Pro	Leu Asp Lys Asp Lys	Phe Glu Met Asp Leu Arg		
223	228	233	238	
aac ctg tgg agg gac	tcc att atc cca cgc	agc ctg gac aac ctg ggt		828
Asn Leu Trp Arg Asp	Ser Ile Ile Pro Arg	Ser Leu Asp Asn Leu Gly		
239	244	249	254	
tac aac ctc tac cat	ccc ctg ggc tgc gaa	ttg gcc tcc atc cgc aga		876
Tyr Asn Leu Tyr His	Pro Leu Gly Ser Glu	Leu Ala Ser Ile Arg Arg		
255	260	265	270	

gcc tgc gac cac atg ccc agc ctc atg agc tcc aag gtg gag gag ctg	924
Ala Cys Asp His Met Pro Ser Leu Met Ser Ser Lys Val Glu Glu Leu	
271 276 281 286	
gcc cgg agc ctc cgg gcg gat atc gaa cgc gtg gcc cgc gag aac tca	972
Ala Arg Ser Leu Arg Ala Asp Ile Glu Arg Val Ala Arg Glu Asn Ser	
287 292 297 302	
gac ctc caa cgc cag aag ctg gaa gcc cag cag ggc ctg cgg gcc agt	1020
Asp Leu Gln Arg Gln Lys Leu Glu Ala Gln Gln Gly Leu Arg Ala Ser	
303 308 313 318	
cag gag gcg aaa cag aag gtg gag aag gag gct cag gcc cgg gag gcc	1068
Gln Glu Ala Lys Gln Lys Val Glu Lys Glu Ala Gln Ala Arg Glu Ala	
319 324 329 334	
aag ctc caa gct gaa tgc tcc cgg cag acc cag cta gcg ctg gag gag	1116
Lys Leu Gln Ala Glu Cys Ser Arg Gln Thr Gln Leu Ala Leu Glu Glu	
335 340 345 350	
aag gcg gtg ctg cgg aag gaa cga gac aac ctg gcc aag gag ctg gaa	1164
Lys Ala Val Leu Arg Lys Glu Arg Asp Asn Leu Ala Lys Glu Leu Glu	
351 356 361 366	
gag aag aag agg gag gcg gag cag ctc agg atg gag ctg gcc atc aga	1212
Glu Lys Lys Arg Glu Ala Glu Gln Leu Arg Met Glu Leu Ala Ile Arg	
367 372 377 382	
aac tca gcc ctg gac acc tgc atc aag acc aag tcg cag ccg atg atg	1260
Asn Ser Ala Leu Asp Thr Cys Ile Lys Thr Lys Ser Gln Pro Met Met	
383 388 393 398	
cca gtg tca agg ccc atg ggc cct gtc ccc aac ccc cag ccc atc gac	1308
Pro Val Ser Arg Pro Met Gly Pro Val Pro Asn Pro Gln Pro Ile Asp	
399 404 409 414	
cca gct agc ctg gag gag ttc aag agg aag atc ctg gag tcc cag agg	1356
Pro Ala Ser Leu Glu Glu Phe Lys Arg Lys Ile Leu Glu Ser Gln Arg	
415 420 425 430	
ccc cct gca ggc atc cct gta gcc cca tcc agt ggc tga ggaggctcca	1405
Pro Pro Ala Gly Ile Pro Val Ala Pro Ser Ser Gly *	
431 436 441	
ggcctgagga ccaagggatg gcccgactcg gcggtttgcg gaggatgcag ggatatgctc	1465
acagcgcgacg acacaacccc ctcccgcgcg ccccaaccac ccagggccac catcagacaa	1525
ctccctgcat gcaaaccct agtaccctct cacaccgcga cccgcgcctc acgatccctc	1585
accagagca caccggccgcg gagatgacgt caccgaagca accggcgtga cgtcacatat	1645
caccgtggtg atggcgctcac gtggccatgt agacgtcacg aagagatata gcgatggcgt	1705
cgtgcagatg caggcacgtt cgcacacaga catggggaac ttggcatgac gttcacaccg	1765

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 agctggtgac agaccactc tgtaactttc agctagattc agccaccaga tcccagaaac 180  
 atgacccttg ctgcctacaa agagaag atg aag gag ctc ccg ctg gtg tcc 231  
 Met Lys Glu Leu Pro Leu Val Ser  
 1 5  
 ttg ttc tgc tcc tgc ttc ctg gcc gat ccc ctg aat aag tcg tcc tac 279  
 Leu Phe Cys Ser Cys Phe Leu Ala Asp Pro Leu Asn Lys Ser Ser Tyr  
 9 14 19 24  
 aaa tat gaa gca gac acg gtg gac ctg aat tgg tgc gtc att tcc gac 327  
 Lys Tyr Glu Ala Asp Thr Val Asp Leu Asn Trp Cys Val Ile Ser Asp  
 25 30 35 40  
 atg gaa gtc atc gag ctg aac aaa tgc acc tcg ggc caa tcc ttt gaa 375  
 Met Glu Val Ile Glu Leu Asn Lys Cys Thr Ser Gly Gln Ser Phe Glu  
 41 46 51 56

gtc atc ctg aag cca ccc tcc ttt gat ggg gtt ccc gag ttc aac gcc	423
Val Ile Leu Lys Pro Pro Ser Phe Asp Gly Val Pro Glu Phe Asn Ala	
57 62 67 72	
tcc ctg cca agg cgg cga gac cca tcc ctg gaa gag atc cag aag aaa	471
Ser Leu Pro Arg Arg Arg Asp Pro Ser Leu Glu Glu Ile Gln Lys Lys	
73 78 83 88	
cta gaa gcg gct gag gag cga agg aag tac cag gaa gcg gag ctc ctg	519
Leu Glu Ala Ala Glu Glu Arg Arg Lys Tyr Gln Glu Ala Glu Leu Leu	
89 94 99 104	
aaa cac cta gca gag aaa cgg gaa cat gag aga gag gtg atc caa aag	567
Lys His Leu Ala Glu Lys Arg Glu His Glu Arg Glu Val Ile Gln Lys	
105 110 115 120	
gcc att gag gaa aac aac aac ttc atc aag atg gct aag gaa aaa ctg	615
Ala Ile Glu Glu Asn Asn Asn Phe Ile Lys Met Ala Lys Glu Lys Leu	
121 126 131 136	
gcc cag aag atg gaa tcc aac aag gag aac agg gag gcc cac ctc gcc	663
Ala Gln Lys Met Glu Ser Asn Lys Glu Asn Arg Glu Ala His Leu Ala	
137 142 147 152	
gcc atg ttg gaa cgg ctg caa gag aag gac aag cac gcc gag gag gtg	711
Ala Met Leu Glu Arg Leu Gln Glu Lys Asp Lys His Ala Glu Glu Val	
153 158 163 168	
cgg aaa aac aag gag ctg aag gaa gag gcc tcc agg taa agcctagagg	760
Arg Lys Asn Lys Glu Leu Lys Glu Glu Ala Ser Arg *	
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agctggtgac agaccactc tgtaactttc agctagattc agccaccaga tcccagaaac	180
atg acc ctt gct gcc tac aaa gag aag atg aag gag ctc ccg ctg gtg	228
Met Thr Leu Ala Ala Tyr Lys Glu Lys Met Lys Glu Leu Pro Leu Val	

1	5	10	15	
tcc ttg ttc tgc tcc tgc ttc ctg gcc gat ccc ctg aat aag tgc tcc				276
Ser Leu Phe Cys Ser Cys Phe Leu Ala Asp Pro Leu Asn Lys Ser Ser				
17	22	27	32	
tac aaa tat gaa ggc tgg tgt ggg aga cag tgt agg agg aag gat gaa				324
Tyr Lys Tyr Glu Gly Trp Cys Gly Arg Gln Cys Arg Arg Lys Asp Glu				
33	38	43	48	
agc cag cgg aaa gac agt gct gac tgg aga gaa aga aga gct cag gca				372
Ser Gln Arg Lys Asp Ser Ala Asp Trp Arg Glu Arg Arg Ala Gln Ala				
49	54	59	64	
gac acg gtg gac ctg aat tgg tgc gtc att tcc gac atg gaa gtc atc				420
Asp Thr Val Asp Leu Asn Trp Cys Val Ile Ser Asp Met Glu Val Ile				
65	70	75	80	
gag ctg aac aaa tgc acc tgc ggc caa tcc ttt gaa gtc atc ctg aag				468
Glu Leu Asn Lys Cys Thr Ser Gly Gln Ser Phe Glu Val Ile Leu Lys				
81	86	91	96	
cca ccc tcc ttt gat ggg gtt ccc gag ttc aac gcc tcc ctg cca agg				516
Pro Pro Ser Phe Asp Gly Val Pro Glu Phe Asn Ala Ser Leu Pro Arg				
97	102	107	112	
cgg cga gac cca tcc ctg gaa gag atc cag aag aaa cta gaa gcg gct				564
Arg Arg Asp Pro Ser Leu Glu Glu Ile Gln Lys Lys Leu Glu Ala Ala				
113	118	123	128	
gag gag cga agg aag tac cag gaa gcg gag ctg ctg aaa cac cta gca				612
Glu Glu Arg Arg Lys Tyr Gln Glu Ala Glu Leu Leu Lys His Leu Ala				
129	134	139	144	
gag aaa cgg gaa cat gag aga gag gtg atc caa aag gcc att gag gaa				660
Glu Lys Arg Glu His Glu Arg Glu Val Ile Gln Lys Ala Ile Glu Glu				
145	150	155	160	
aac aac aac ttc atc aag atg gct aag gaa aaa ctg gcc cag aag atg				708
Asn Asn Asn Phe Ile Lys Met Ala Lys Glu Lys Leu Ala Gln Lys Met				
161	166	171	176	
gaa tcc aac aag gag aac agg gag gcc cac ctg gcc gcc atg ttg gaa				756
Glu Ser Asn Lys Glu Asn Arg Glu Ala His Leu Ala Ala Met Leu Glu				
177	182	187	192	
cgg ctg caa gag aag gac aag cac gcc gag gag gtg cgg aaa aac aag				804
Arg Leu Gln Glu Lys Asp Lys His Ala Glu Glu Val Arg Lys Asn Lys				
193	198	203	208	
gag ctg aag gaa gag gcc tcc agg taa agcct agaggccaaa gaactttcca				856
Glu Leu Lys Glu Glu Ala Ser Arg *				
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cccagcact				925

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<400> 884

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                                         Met Ala Ala His Leu Ser Tyr
                                         1              5

ggc cga gtg aac cta aac gtg ttg cgc gag gcg gtg cgt cgc gag ctg      159
Gly Arg Val Asn Leu Asn Val Leu Arg Glu Ala Val Arg Arg Glu Leu
  8              13              18              23

cgc gag ttc ctg gac aag tgc gca gga agc aag gca ata gtt tgg gat      207
Arg Glu Phe Leu Asp Lys Cys Ala Gly Ser Lys Ala Ile Val Trp Asp
  24              29              34              39

gaa tac cta act gga ccc ttt ggc ctg att gca cag tat tca cta ttg      255
Glu Tyr Leu Thr Gly Pro Phe Gly Leu Ile Ala Gln Tyr Ser Leu Leu
  40              45              50              55

aag gaa cat gaa gtg gaa aaa atg ttc aca ctt aaa gga aat cgt ttg      303
Lys Glu His Glu Val Glu Lys Met Phe Thr Leu Lys Gly Asn Arg Leu
  56              61              66              71

ccg gca gct gat gtg aag aat ata att ttt ttt gtc aga ccc agg cta      351
Pro Ala Ala Asp Val Lys Asn Ile Ile Phe Phe Val Arg Pro Arg Leu
  72              77              82              87

gag ttg atg gat ata atc gct gaa aac gtg ctc agt gaa gat aga cga      399
Glu Leu Met Asp Ile Ile Ala Glu Asn Val Leu Ser Glu Asp Arg Arg
  88              93              98              103

ggc cca acg aga gat ttt cat att ctg ttt gtg cca cgc cgt agc ctg      447
Gly Pro Thr Arg Asp Phe His Ile Leu Phe Val Pro Arg Arg Ser Leu
  104              109              114              119

ttg tgc gaa cag cgg ttg aag gat ctg ggt gtc ttg gga tcc ttt att      495
Leu Cys Glu Gln Arg Leu Lys Asp Leu Gly Val Leu Gly Ser Phe Ile
  120              125              130              135

cac agg gag gag tac agc tta gat ctc att cca ttc gat ggg gat ctc      543
His Arg Glu Gly Tyr Ser Leu Asp Leu Ile Pro Phe Asp Gly Asp Leu
  136              141              146              151

tta tcc atg gaa tca gag ggt gca ttc aaa gag tgc tac ctg gag ggt      591

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Leu Ser Met Glu Ser Glu Gly Ala Phe Lys Glu Cys Tyr Leu Glu Gly	
152 157 162 167	
gac cag acg agc ctg tac cac gca gcc aag ggg ctg atg acc ctg caa	639
Asp Gln Thr Ser Leu Tyr His Ala Ala Lys Gly Leu Met Thr Leu Gln	
168 173 178 183	
gct ctg tat gga acg atc ccc cag atc ttt ggg aaa gga gaa tgc gct	687
Ala Leu Tyr Gly Thr Ile Pro Gln Ile Phe Gly Lys Gly Glu Cys Ala	
184 189 194 199	
cgg caa gtg gcc aat atg atg atc agg atg aag aga gag ttt aca gga	735
Arg Gln Val Ala Asn Met Met Ile Arg Met Lys Arg Glu Phe Thr Gly	
200 205 210 215	
agc cag aat tca ata ttt cct gtt ttt gat aat ctc ttg ttg ctt gat	783
Ser Gln Asn Ser Ile Phe Pro Val Phe Asp Asn Leu Leu Leu Leu Asp	
216 221 226 231	
cgg aat gtg gat tta tta aca cct ctt gcc act cag ctg aca tat gaa	831
Arg Asn Val Asp Leu Leu Thr Pro Leu Ala Thr Gln Leu Thr Tyr Glu	
232 237 242 247	
gga ctc att gat gaa att tat ggc att cag aac agt tat gtg aaa tta	879
Gly Leu Ile Asp Glu Ile Tyr Gly Ile Gln Asn Ser Tyr Val Lys Leu	
248 253 258 263	
cct cca gag aaa ttt gca cct aaa aaa cag ggc gat ggt ggt aag gac	927
Pro Pro Glu Lys Phe Ala Pro Lys Lys Gln Gly Asp Gly Gly Lys Asp	
264 269 274 279	
ctc ccc acg gaa gca aag aag ctg cag ctg aat tct gca gag gag ctc	975
Leu Pro Thr Glu Ala Lys Lys Leu Gln Leu Asn Ser Ala Glu Glu Leu	
280 285 290 295	
tat gct gag atc cga gat aag aac ttc aac gca gtt ggc tct gtg ctc	1023
Tyr Ala Glu Ile Arg Asp Lys Asn Phe Asn Ala Val Gly Ser Val Leu	
296 301 306 311	
agc aag aaa gca aag atc atc tct gca gca ttc gag gaa aga cac aat	1071
Ser Lys Lys Ala Lys Ile Ile Ser Ala Ala Phe Glu Glu Arg His Asn	
312 317 322 327	
gct aag acc gtg ggg gag atc aag cag ttt gtt tcc cag ttg ccc cac	1119
Ala Lys Thr Val Gly Glu Ile Lys Gln Phe Val Ser Gln Leu Pro His	
328 333 338 343	
atg cag gca gca agg ggc tcg ctt gca aac cat acc tca att gca gaa	1167
Met Gln Ala Ala Arg Gly Ser Leu Ala Asn His Thr Ser Ile Ala Glu	
344 349 354 359	
ttg atc aaa gat gtc act act tct gaa gac ttt ttt gat aaa tta acc	1215
Leu Ile Lys Asp Val Thr Thr Ser Glu Asp Phe Phe Asp Lys Leu Thr	
360 365 370 375	
gtg gaa cag gag ttt atg tct gga ata gac act gat aag gtc aac aat	1263
Val Glu Gln Glu Phe Met Ser Gly Ile Asp Thr Asp Lys Val Asn Asn	



376	381	386	391	
tac att gag gat tgt atc gcc caa aag cac tcg ttg atc aag gtg tta				1311
Tyr Ile Glu Asp Cys Ile Ala Gln Lys His Ser Leu Ile Lys Val Leu				
392	397	402	407	
aga cta gtt tgc ctc caa tcc gtg tgt aat agt ggg ctc aaa caa aaa				1359
Arg Leu Val Cys Leu Gln Ser Val Cys Asn Ser Gly Leu Lys Gln Lys				
408	413	418	423	
gtt ttg gat tat tac aaa aga gag att ctc cag aca tac ggc tat gag				1407
Val Leu Asp Tyr Tyr Lys Arg Glu Ile Leu Gln Thr Tyr Gly Tyr Glu				
424	429	434	439	
cac ata ttg acc tta cac aac ctg gag aag gcc ggc ctg ctg aaa ccg				1455
His Ile Leu Thr Leu His Asn Leu Glu Lys Ala Gly Leu Leu Lys Pro				
440	445	450	455	
cag acg ggg ggc aga aac aat tac cca act ata cgg aaa aca tta cgc				1503
Gln Thr Gly Gly Arg Asn Asn Tyr Pro Thr Ile Arg Lys Thr Leu Arg				
456	461	466	471	
ctc tgg atg gat gat gtt aat gag caa aac ccc acg gac ata tcg tat				1551
Leu Trp Met Asp Asp Val Asn Glu Gln Asn Pro Thr Asp Ile Ser Tyr				
472	477	482	487	
gtg tac agt ggg tat gcc ccg ctc agt gtg cgg ctg gcc cag ctg ctt				1599
Val Tyr Ser Gly Tyr Ala Pro Leu Ser Val Arg Leu Ala Gln Leu Leu				
488	493	498	503	
tcc cgg cct ggc tgg cgg agc atc gag gag gtc ctc cgc atc ctc cca				1647
Ser Arg Pro Gly Trp Arg Ser Ile Glu Glu Val Leu Arg Ile Leu Pro				
504	509	514	519	
ggg ccc cac ttt gag gag cgg cag cca ctg ccc aca gga ctg cag aag				1695
Gly Pro His Phe Glu Glu Arg Gln Pro Leu Pro Thr Gly Leu Gln Lys				
520	525	530	535	
aaa cgt caa ccg gga gaa aac cga gtg act ctg ata ttt ttc ctt ggg				1743
Lys Arg Gln Pro Gly Glu Asn Arg Val Thr Leu Ile Phe Phe Leu Gly				
536	541	546	551	
ggc gta acc ttc gct gaa att gct gcc ctg cga ttt ctc tcc cag ttg				1791
Gly Val Thr Phe Ala Glu Ile Ala Ala Leu Arg Phe Leu Ser Gln Leu				
552	557	562	567	
gaa gat gga ggt aca gaa tat gtc att gcc acc act aaa cta atg aat				1839
Glu Asp Gly Gly Thr Glu Tyr Val Ile Ala Thr Thr Lys Leu Met Asn				
568	573	578	583	
gga acc agt tgg ata gag gct ctg atg gaa aaa cct ttc tag gatgttc				1888
Gly Thr Ser Trp Ile Glu Ala Leu Met Glu Lys Pro Phe *				
584	589	594		
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           Met Gly Ser Gln Val Ser Val Glu Ser Gly Ala Leu His  
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 gtg gtg att gtg ggt ggg ggc ttt ggc ggg atc gca gca gcc agc cag 217  
 Val Val Ile Val Gly Gly Gly Phe Gly Gly Ile Ala Ala Ala Ser Gln  
 14                  19                  24                  29  
 ctg cag gcc ctg aac gtc ccc ttc atg ctg gtg gac atg aag gac tcc 265  
 Leu Gln Ala Leu Asn Val Pro Phe Met Leu Val Asp Met Lys Asp Ser  
 30                  35                  40                  45  
 ttc cac cac aat gtg gct gct ctc cga gcc tcc gtg gag aca ggg ttc 313

Phe His His Asn Val Ala Ala Leu Arg Ala Ser Val Glu Thr Gly Phe  
46 51 56 61

gcc aaa aag aca ttc att tct tac tcg gtg act ttc aag gac aac ttc 361  
Ala Lys Lys Thr Phe Ile Ser Tyr Ser Val Thr Phe Lys Asp Asn Phe  
62 67 72 77

cgg cag ggg cta gta gtg ggg ata gac ctg aag aac cag atg gtg ctg 409  
Arg Gln Gly Leu Val Val Gly Ile Asp Leu Lys Asn Gln Met Val Leu  
78 83 88 93

ctg cag ggt ggc gag gcc ctg ccc ttc tct cat ctt atc ctg gcc acg 457  
Leu Gln Gly Gly Glu Ala Leu Pro Phe Ser His Leu Ile Leu Ala Thr  
94 99 104 109

ggc agc act ggg ccc ttc ccg ggc aag ttt aat gag gtt tcc agc cag 505  
Gly Ser Thr Gly Pro Phe Pro Gly Lys Phe Asn Glu Val Ser Ser Gln  
110 115 120 125

cag gcc gct atc cag gcc tat gag gac atg gtg agg cag gtc cag cgc 553  
Gln Ala Ala Ile Gln Ala Tyr Glu Asp Met Val Arg Gln Val Gln Arg  
126 131 136 141

tca cgg ttc atc gtg gtg gtg gga gga ggc tcg gct gga gtg gag atg 601  
Ser Arg Phe Ile Val Val Val Gly Gly Gly Ser Ala Gly Val Glu Met  
142 147 152 157

gca gca gag att aaa aca gaa tat cct gag aaa gag gtc act ctc att 649  
Ala Ala Glu Ile Lys Thr Glu Tyr Pro Glu Lys Glu Val Thr Leu Ile  
158 163 168 173

cac tcc caa gtg gcc ctg gct gac aag gag ctc ctg ccc tcc gtc cgg 697  
His Ser Gln Val Ala Leu Ala Asp Lys Glu Leu Leu Pro Ser Val Arg  
174 179 184 189

cag gaa gtg aag gag atc ctc ctc cgg aag ggc gtg cag ctg ctg ctg 745  
Gln Glu Val Lys Glu Ile Leu Leu Arg Lys Gly Val Gln Leu Leu Leu  
190 195 200 205

agt gag cgg gtg agc aat ctg gag gag ctg cct ctc aat gag tat cga 793  
Ser Glu Arg Val Ser Asn Leu Glu Glu Leu Pro Leu Asn Glu Tyr Arg  
206 211 216 221

gag tac atc aaa gtg cag acg gac aaa ggc aca gag gtg gcc acc aac 841  
Glu Tyr Ile Lys Val Gln Thr Asp Lys Gly Thr Glu Val Ala Thr Asn  
222 227 232 237

ctg gtg att ctc tgc acc ggc atc aag atc aac agc tcc gcc tac cgc 889  
Leu Val Ile Leu Cys Thr Gly Ile Lys Ile Asn Ser Ser Ala Tyr Arg  
238 243 248 253

aaa gca ttt gag agc aga cta gcc agc agt ggt gct ctg aga gtg aac 937  
Lys Ala Phe Glu Ser Arg Leu Ala Ser Ser Gly Ala Leu Arg Val Asn  
254 259 264 269

gag cac ctc cag gtg gag ggc cac agc aac gtc tac gcc att ggt gac 985  
Glu His Leu Gln Val Glu Gly His Ser Asn Val Tyr Ala Ile Gly Asp

270	275	280	285	
tgt gcc gac gtg agg acg ccc aag atg gcc tat ctt gcc ggc ctc cac				1033
Cys Ala Asp Val Arg Thr Pro Lys Met Ala Tyr Leu Ala Gly Leu His				
286	291	296	301	
gcc aac atc gcc gtg gcc aac atc gtc aac tct gtg aag cag cgg cct				1081
Ala Asn Ile Ala Val Ala Asn Ile Val Asn Ser Val Lys Gln Arg Pro				
302	307	312	317	
ctc cag gcc tac aag ccg ggt gca ctg acg ttc ctc ctg tcc atg ggg				1129
Leu Gln Ala Tyr Lys Pro Gly Ala Leu Thr Phe Leu Leu Ser Met Gly				
318	323	328	333	
aga aat gac ggt gtg ggc caa atc agt ggc ttc tat gtg ggc cgg ctc				1177
Arg Asn Asp Gly Val Gly Gln Ile Ser Gly Phe Tyr Val Gly Arg Leu				
334	339	344	349	
atg gtt cgg ctg acc aag agc cgg gac ctg ttc gtc tct acg agc tgg				1225
Met Val Arg Leu Thr Lys Ser Arg Asp Leu Phe Val Ser Thr Ser Trp				
350	355	360	365	
aaa acc atg agg cag tct cca cct tga tggag aggccaggcg ggagaactac				1277
Lys Thr Met Arg Gln Ser Pro Pro *				
366	371			
cgccagcaggt gggcggtacgg actgcttggc gcatggcacc cgccctggcaa gtgctagaac				1337
taatgctatt cttctggaat aagatgccaa tgatgtggtg gctagaaatg caacttgtat				1397
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gaatacac atg gct ctg tta cga aaa att aat cag gtg ctg ctg ttc ctt	410
Met Ala Leu Leu Arg Lys Ile Asn Gln Val Leu Leu Phe Leu	
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ctg atc gtg acc ctc tgt gtg att ctg tat aaa aaa gtt cat aag ggg	458
Leu Ile Val Thr Leu Cys Val Ile Leu Tyr Lys Lys Val His Lys Gly	
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act gtg ccc aag aat gac gca gat gat gaa tcc gag act cct gaa gaa	506
Thr Val Pro Lys Asn Asp Ala Asp Asp Glu Ser Glu Thr Pro Glu Glu	
31 36 41 46	
ctg gaa gaa gag att cct gtg gtg att tgt gct gca gca ggg agg atg	554
Leu Glu Glu Glu Ile Pro Val Val Ile Cys Ala Ala Ala Gly Arg Met	
47 52 57 62	
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Gly Ala Thr Met Ala Ala Ile Asn Ser Ile Tyr Ser Asn Thr Asp Ala	
63 68 73 78	
aac atc ttg ttc tat gta gtg gga ctc cgg aat act ctg act cga ata	650
Asn Ile Leu Phe Tyr Val Val Gly Leu Arg Asn Thr Leu Thr Arg Ile	
79 84 89 94	
cga aaa tgg att gaa cat tcc aaa ctg aga gaa ata aac ttt aaa atc	698
Arg Lys Trp Ile Glu His Ser Lys Leu Arg Glu Ile Asn Phe Lys Ile	
95 100 105 110	
gtg gaa ttc aac ccg atg gtc ctc aaa ggg aag atc aga cca gac tca	746
Val Glu Phe Asn Pro Met Val Leu Lys Gly Lys Ile Arg Pro Asp Ser	
111 116 121 126	
tcg agg cct gaa ttg ctc cag cct ctg aac ttt gtt cga ttt tat ctc	794
Ser Arg Pro Glu Leu Leu Gln Pro Leu Asn Phe Val Arg Phe Tyr Leu	
127 132 137 142	
cct cta ctt atc cac caa cac gag aaa gtc atc tat ttg gac gat gat	842
Pro Leu Leu Ile His Gln His Glu Lys Val Ile Tyr Leu Asp Asp Asp	
143 148 153 158	
gta att gta caa ggt gat atc caa gaa ctg tat gac acc acc ttg gcc	890
Val Ile Val Gln Gly Asp Ile Gln Glu Leu Tyr Asp Thr Thr Leu Ala	
159 164 169 174	
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Leu Gly His Ala Ala Ala Phe Ser Asp Asp Cys Asp Leu Pro Ser Ala	
175 180 185 190	
cag gac ata aac aga ctc gtg gga ctt cag aac aca tat atg ggc tat	986
Gln Asp Ile Asn Arg Leu Val Gly Leu Gln Asn Thr Tyr Met Gly Tyr	
191 196 201 206	
ctg gac tac cgg aag aag gcc atc aag gac ctt ggc atc agc ccc agc	1034
Leu Asp Tyr Arg Lys Lys Ala Ile Lys Asp Leu Gly Ile Ser Pro Ser	
207 212 217 222	
acc tgc tct ttc aat cct ggt gtg att gtt gcc aac atg aca gaa tgg	1082

Thr Cys Ser Phe Asn Pro Gly Val Ile Val Ala Asn Met Thr Glu Trp	
223 228 233 238	
aag cac cag cgc atc acc aag caa ttg gag aaa tgg atg caa aag aat	1130
Lys His Gln Arg Ile Thr Lys Gln Leu Glu Lys Trp Met Gln Lys Asn	
239 244 249 254	
gtg gag gaa aac ctc tat agc agc tcc ctg gga gga ggg gtg gcc acc	1178
Val Glu Glu Asn Leu Tyr Ser Ser Ser Leu Gly Gly Gly Val Ala Thr	
255 260 265 270	
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Ser Pro Met Leu Ile Val Phe His Gly Lys Tyr Ser Thr Ile Asn Pro	
271 276 281 286	
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Leu Trp His Ile Arg His Leu Gly Trp Asn Pro Asp Ala Arg Tyr Ser	
287 292 297 302	
gag cat ttt ctg cag gaa gct aaa tta ctc cac tgg aat gga aga cat	1322
Glu His Phe Leu Gln Glu Ala Lys Leu Leu His Trp Asn Gly Arg His	
303 308 313 318	
aaa cct tgg gac ttc cct agt gtt cac aac gac tta tgg gaa agc tgg	1370
Lys Pro Trp Asp Phe Pro Ser Val His Asn Asp Leu Trp Glu Ser Trp	
319 324 329 334	
ttt gtt cct gac cct gca ggg ata ttt aaa ctc aat cac cat agc tga	1418
Phe Val Pro Asp Pro Ala Gly Ile Phe Lys Leu Asn His His Ser *	
335 340 345 350	
tataactcta cccttaaaat attccctgta tagaaatgtg gaattgtccc tttgtagcca	1478
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<210> 887

<211> 1986

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (579) .. (1484)

<400> 887

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tgttggacat cgatggagt cttgtgcggg gccacagagt gatccctgct gctctgaaag 420  
ccttccgaag gctggtgaac tcccaggggc agctgcgggt gcccggtggtt tttgttataa 480  
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Met Lys Leu Phe Ser  
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gag tac cat gag aag cgg atg ctg gtg tct gga cag ggg ccc gtg atg 641  
Glu Tyr His Glu Lys Arg Met Leu Val Ser Gly Gln Gly Pro Val Met  
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gaa aat gcc cag gga ctg ggc ttc cga aat gtc gtc acc gtg gat gag 689  
Glu Asn Ala Gln Gly Leu Gly Phe Arg Asn Val Val Thr Val Asp Glu  
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38 43 48 53  
cta aag acc acg ccc ctc ccg agg aat gac ttc ccc cgc att gaa ggg 785  
Leu Lys Thr Thr Pro Leu Pro Arg Asn Asp Phe Pro Arg Ile Glu Gly  
54 59 64 69  
gtg ctc ctc cta ggg gag ccg gtc cgc tgg gag acc agc ctg cag ctg 833  
Val Leu Leu Leu Gly Glu Pro Val Arg Trp Glu Thr Ser Leu Gln Leu  
70 75 80 85  
atc atg gat gtc ctc ctc agc aat ggg agc cct ggg gct ggc ctg gca 881  
Ile Met Asp Val Leu Leu Ser Asn Gly Ser Pro Gly Ala Gly Leu Ala  
86 91 96 101  
aca ccc ccc tac ccc cac ctc ccc gtc cta gcc agc aac atg gat ctc 929  
Thr Pro Pro Tyr Pro His Leu Pro Val Leu Ala Ser Asn Met Asp Leu  
102 107 112 117  
ctg tgg atg gct gaa gcc aag atg ccc agg ttt gga cat ggc acc ttt 977  
Leu Trp Met Ala Glu Ala Lys Met Pro Arg Phe Gly His Gly Thr Phe  
118 123 128 133  
ctg ctg tgc ctg gaa acc att tac cag aaa gtg acg ggc aag gag ctg 1025  
Leu Leu Cys Leu Glu Thr Ile Tyr Gln Lys Val Thr Gly Lys Glu Leu  
134 139 144 149  
aga tac gag ggc ctg atg ggc aaa ccc agc atc ctc act tac cag tat 1073  
Arg Tyr Glu Gly Leu Met Gly Lys Pro Ser Ile Leu Thr Tyr Gln Tyr  
150 155 160 165  
gcc gag gac ctg atc agg cga cag gcg gag agg cgg ggc tgg gcc gcc 1121  
Ala Glu Asp Leu Ile Arg Arg Gln Ala Glu Arg Arg Gly Trp Ala Ala

166	171	176	181	
ccc atc cgg aag ctc tat gct gtg ggt gat aac cct atg tct gac gta				1169
Pro Ile Arg Lys Leu Tyr Ala Val Gly Asp Asn Pro Met Ser Asp Val				
182	187	192	197	
tac ggc gcc aac ctg ttc cac cag tac ctg cag aag gca acg cat gat				1217
Tyr Gly Ala Asn Leu Phe His Gln Tyr Leu Gln Lys Ala Thr His Asp				
198	203	208	213	
ggg gcg cca gaa cta ggg gcc ggg ggc aca cgg cag caa cag ccc tca				1265
Gly Ala Pro Glu Leu Gly Ala Gly Gly Thr Arg Gln Gln Gln Pro Ser				
214	219	224	229	
gca agc cag agc tgc atc tcc atc ctg gtg tgt aca ggc gtc tac aat				1313
Ala Ser Gln Ser Cys Ile Ser Ile Leu Val Cys Thr Gly Val Tyr Asn				
230	235	240	245	
ccc agg aac cca cag tcc acg gag cct gtc ctt gga gga ggg gag cct				1361
Pro Arg Asn Pro Gln Ser Thr Glu Pro Val Leu Gly Gly Gly Glu Pro				
246	251	256	261	
cca ttc cac ggg cac cga gac tta tgc ttc agt cca ggg ctc atg gag				1409
Pro Phe His Gly His Arg Asp Leu Cys Phe Ser Pro Gly Leu Met Glu				
262	267	272	277	
gcc tcc cac gtg gtg aat gac gtg aat gag gct gtg cag ctg gtc ttc				1457
Ala Ser His Val Val Asn Asp Val Asn Glu Ala Val Gln Leu Val Phe				
278	283	288	293	
cgc aag gag ggc tgg gct ttg gag tga gggca gtgcggtgga ggtgagggg				1509
Arg Lys Glu Gly Trp Ala Leu Glu *				
294	299			
tgagcctgga cctgtgggag agtcccattg gctgggctct ggccatgatca ctgggctcag				1569
gtcaggggctt ggttcccttg ccacccttct tgctgccccca tgagtgtggc attactggtc				1629
acttgaaga agacagtgc tctttttccc tgctgggtag cattttgtat ggaacgggtg				1689
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gtcggcagag tgtcttaaca ccagatgcta ctttttactg tattgtagtt tattgcccgg				1929
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 <212> DNA  
 <213> Homo sapiens



<220>  
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 <222> (92)..(1156)

<400> 888

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Met Cys Gly Arg Thr Ser Cys	
1 5	
cac tta cct aga gat gtt ctc acg aga gct tgc gcc tac cag gat cgg	160
His Leu Pro Arg Asp Val Leu Thr Arg Ala Cys Ala Tyr Gln Asp Arg	
8 13 18 23	
cgg ggc cag cag cgg ctc ccg gag tgg agg gac cct gat aag tac tgc	208
Arg Gly Gln Gln Arg Leu Pro Glu Trp Arg Asp Pro Asp Lys Tyr Cys	
24 29 34 39	
ccc tct tac aac aag agt cct caa tcc aac agc cca gtg ctt ctg tct	256
Pro Ser Tyr Asn Lys Ser Pro Gln Ser Asn Ser Pro Val Leu Leu Ser	
40 45 50 55	
cga ctg cac ttt gag aag gat gca gac tca tct gag cgt atc att gct	304
Arg Leu His Phe Glu Lys Asp Ala Asp Ser Ser Glu Arg Ile Ile Ala	
56 61 66 71	
ccc atg cgc tgg ggc ttg gtc cct tct tgg ttc aaa gaa agt gat cct	352
Pro Met Arg Trp Gly Leu Val Pro Ser Trp Phe Lys Glu Ser Asp Pro	
72 77 82 87	
tcc aag ctg cag ttc aat act acc aac tgt cgt agt gat acc gta atg	400
Ser Lys Leu Gln Phe Asn Thr Thr Asn Cys Arg Ser Asp Thr Val Met	
88 93 98 103	
gag aaa cgg tca ttt aag gtg cct ctg gga aag gga aga cgc tgt gtc	448
Glu Lys Arg Ser Phe Lys Val Pro Leu Gly Lys Gly Arg Arg Cys Val	
104 109 114 119	
gtt tta gca gat gga ttc tat gag tgg cag cga tgt cag gga aca aac	496
Val Leu Ala Asp Gly Phe Tyr Glu Trp Gln Arg Cys Gln Gly Thr Asn	
120 125 130 135	
cag agg cag cca tac ttc atc tat ttt cct caa atc aag aca gag aag	544
Gln Arg Gln Pro Tyr Phe Ile Tyr Phe Pro Gln Ile Lys Thr Glu Lys	
136 141 146 151	
tca ggt agc att ggt gct gca gat agt cct gag aac tgg gag aaa gtc	592
Ser Gly Ser Ile Gly Ala Ala Asp Ser Pro Glu Asn Trp Glu Lys Val	
152 157 162 167	
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Trp Asp Asn Trp Arg Leu Leu Thr Met Ala Gly Ile Phe Asp Cys Trp	
168 173 178 183	
gag ccc cca gag gga gga gat gtc ctg tat tcc tat acc atc atc aca	688

Glu Pro Pro Glu Gly Gly Asp Val Leu Tyr Ser Tyr Thr Ile Ile Thr	
184	189 194 199
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Val Asp Ser Cys Lys Gly Leu Ser Asp Ile His His Arg Met Pro Ala	
200	205 210 215
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Ile Leu Asp Gly Glu Glu Ala Val Ser Lys Trp Leu Asp Phe Gly Glu	
216	221 226 231
gtc tca act cag gaa gct ctg aaa tta atc cac cca aca gag aac atc	832
Val Ser Thr Gln Glu Ala Leu Lys Leu Ile His Pro Thr Glu Asn Ile	
232	237 242 247
acc ttc cat gca gtc tct tct gtg gtg aac aac tgc cga aac aac act	880
Thr Phe His Ala Val Ser Ser Val Val Asn Asn Ser Arg Asn Asn Thr	
248	253 258 263
cct gag tgt ctg gct cct gtc gac ttg gtg gtc aaa aag gag ctc agg	928
Pro Glu Cys Leu Ala Pro Val Asp Leu Val Val Lys Lys Glu Leu Arg	
264	269 274 279
gca agt ggc agt agc cag agg atg ttg cag tgg ttg gcc aca aag tca	976
Ala Ser Gly Ser Ser Gln Arg Met Leu Gln Trp Leu Ala Thr Lys Ser	
280	285 290 295
ccc aaa aag gaa gac tca aaa aca cct caa aag gaa gag tca gat gtt	1024
Pro Lys Lys Glu Asp Ser Lys Thr Pro Gln Lys Glu Glu Ser Asp Val	
296	301 306 311
ccc cag tgg tcc agt cag ttc ctg cag aag agt cca ctc ccc acc aag	1072
Pro Gln Trp Ser Ser Gln Phe Leu Gln Lys Ser Pro Leu Pro Thr Lys	
312	317 322 327
aga ggc act gca gga ctc cta gag caa tgg ctg aag cgg gag aag gag	1120
Arg Gly Thr Ala Gly Leu Leu Glu Gln Trp Leu Lys Arg Glu Lys Glu	
328	333 338 343
gag gaa cct gtg gcc aag cgt cct tac agc cag tga caca ggactttcag	1170
Glu Glu Pro Val Ala Lys Arg Pro Tyr Ser Gln *	
344	349 354
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<210> 889

<211> 1948

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (39) .. (1127)

<400> 889

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Cys Leu Glu Gly Gly Arg Glu Ala Ala Glu Glu Gly Glu Pro Glu	
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gtg aaa aag cgg cga ctt ctg tgt gtg gag ttt gcc tcg gtc gca agc	149
Val Lys Lys Arg Arg Leu Leu Cys Val Glu Phe Ala Ser Val Ala Ser	
22 27 32 37	

tgc gat gcc gca gtg gct cag tgc ttc ctg gcc gag aac gac tgg gag	197
Cys Asp Ala Ala Val Ala Gln Cys Phe Leu Ala Glu Asn Asp Trp Glu	
38 43 48 53	
atg gaa agg gct ctg aac tcc tac ttc gag cct ccg gtg gag gag agc	245
Met Glu Arg Ala Leu Asn Ser Tyr Phe Glu Pro Pro Val Glu Glu Ser	
54 59 64 69	
gcc ttg gaa cgc cga cct gaa acc atc tct gag ccc aag acc tat gtt	293
Ala Leu Glu Arg Arg Pro Glu Thr Ile Ser Glu Pro Lys Thr Tyr Val	
70 75 80 85	
gac cta acc aat gaa gaa aca act gat tcc acc act tct aaa atc agc	341
Asp Leu Thr Asn Glu Glu Thr Thr Asp Ser Thr Thr Ser Lys Ile Ser	
86 91 96 101	
cca tct gaa gat act cag caa gaa aat ggc agc atg ttc tct ctc att	389
Pro Ser Glu Asp Thr Gln Gln Glu Asn Gly Ser Met Phe Ser Leu Ile	
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Thr Trp Asn Ile Asp Gly Leu Asp Leu Asn Asn Leu Ser Glu Arg Ala	
118 123 128 133	
cga ggg gtg tgt tcc tac tta gct ttg tac agc cca gat gtg ata ttt	485
Arg Gly Val Cys Ser Tyr Leu Ala Leu Tyr Ser Pro Asp Val Ile Phe	
134 139 144 149	
cta cag gaa gtt att ccc cca tat tat agc tac cta aag aag aga tca	533
Leu Gln Glu Val Ile Pro Pro Tyr Tyr Ser Tyr Leu Lys Lys Arg Ser	
150 155 160 165	
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Ser Asn Tyr Glu Ile Ile Thr Gly His Glu Glu Gly Tyr Phe Thr Ala	
166 171 176 181	
ata atg ttg aag aaa tca aga gtg aaa tta aaa agc caa gag att att	629
Ile Met Leu Lys Lys Ser Arg Val Lys Leu Lys Ser Gln Glu Ile Ile	
182 187 192 197	
cct ttt cca agt acc aaa atg atg aga aac ctt tta tgt gtg cat gtg	677
Pro Phe Pro Ser Thr Lys Met Met Arg Asn Leu Leu Cys Val His Val	
198 203 208 213	
aat gtg tca gga aat gag ctt tgc ctt atg aca tcc cat ttg gag agc	725
Asn Val Ser Gly Asn Glu Leu Cys Leu Met Thr Ser His Leu Glu Ser	
214 219 224 229	
acc aga ggg cat gct gcg gaa cga atg aat cag tta aaa atg gtt tta	773
Thr Arg Gly His Ala Ala Glu Arg Met Asn Gln Leu Lys Met Val Leu	
230 235 240 245	
aag aaa atg caa gag gct cca gag tca gct aca gtt ata ttt gca gga	821
Lys Lys Met Gln Glu Ala Pro Glu Ser Ala Thr Val Ile Phe Ala Gly	
246 251 256 261	
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262 267 272 277	
aac aac att gtg gat gtc tgg gag ttt ttg ggc aaa cct aaa cat tgc	917
Asn Asn Ile Val Asp Val Trp Glu Phe Leu Gly Lys Pro Lys His Cys	
278 283 288 293	
cag tat aca tgg gat aca caa atg aac tct aat ctt gga ata act gct	965
Gln Tyr Thr Trp Asp Thr Gln Met Asn Ser Asn Leu Gly Ile Thr Ala	
294 299 304 309	
gct tgt aaa ctt cgt ttt gat cga ata ttt ttc aga gca gca gca gaa	1013
Ala Cys Lys Leu Arg Phe Asp Arg Ile Phe Phe Arg Ala Ala Ala Glu	
310 315 320 325	
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Glu Gly His Ile Ile Pro Arg Ser Leu Asp Leu Leu Gly Leu Glu Lys	
326 331 336 341	
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Leu Asp Cys Gly Arg Phe Pro Ser Asp His Trp Gly Leu Leu Cys Asn	
342 347 352 357	
tta gat ata ata ttg taa aatgct tttcaagtgt gggttttgcc ctgattgttg	1163
Leu Asp Ile Ile Leu *	
358 363	
caaatacaat ttccaccttc tggaaaggta ggtttgctgt ggaggaaata atgtactaga	1223
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taattgtgaa atggaaatgc tttacaggaa gtaaatacaa attactttta agtgtgcttt	1883
aaagaaaaat attttcccca caagagaaat ttaaataaag aattttattt gttaaaaaaa	1943
aaaaa /	1948

<210> 890  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(297)

<400> 890

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atg gat tgc tgt gcc tct cga ggc tgc agt gtc ccc acc ggg cct gcc      48
Met Asp Cys Cys Ala Ser Arg Gly Cys Ser Val Pro Thr Gly Pro Ala
  1              5              10

acc acc atc tgc tcc tct gac aaa tcc tgc cgc tgt gga gtc tgc ctg      96
Thr Thr Ile Cys Ser Ser Asp Lys Ser Cys Arg Cys Gly Val Cys Leu
 17              22              27              32

ccc agc acc tgc cca cac aca gtt tgg tta ctg gag ccc acc tgc tgt      144
Pro Ser Thr Cys Pro His Thr Val Trp Leu Leu Glu Pro Thr Cys Cys
 33              38              43              48

gac aac tgt ccc cca ccc tgc cac att cct cag ccc tgc gtg ccc acc      192
Asp Asn Cys Pro Pro Pro Cys His Ile Pro Gln Pro Cys Val Pro Thr
 49              54              59              64

tgc ttc ctg ctc aac tcc tgc cag cca act cca ggc ctg gag acc ctc      240
Cys Phe Leu Leu Asn Ser Cys Gln Pro Thr Pro Gly Leu Glu Thr Leu
 65              70              75              80

aac ctc acc acc ttc act cag ccc tgc tgt gag ccc tgc ctc cca aga      288
Asn Leu Thr Thr Phe Thr Gln Pro Cys Cys Glu Pro Cys Leu Pro Arg
 81              86              91              96

ggc tgc taa tggatgg ctactttgct cagtgcctga gattgaaaaa gtcaacatag      344
Gly Cys *
 97

aagcttttagc attcacctat ctcagtacct acaactaatg tactctgctt tagaaattgg      404

aacaaggatg gag                                                         417
  
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<210> 891  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (153)..(1436)

<400> 891

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ccacagccac ctccggaggg atctggctga ggaggaagtg gaggtgtcac tggccccggc      60
  
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ctttgcccc	atcttgtgtg	ggcactgaag	ggggactaca	ggttcgagat	acttcctcgc	120
gtattgctaa	aggaggagtt	gaccacacca	aa	atg agt cta cat ggt gct agt		173
				Met Ser Leu His Gly Ala Ser		
				1	5	
ggg gga cat gag aga tca aga gat aga cga agg tca agt gac aga tca						221
Gly Gly His Glu Arg Ser Arg Asp Arg Arg Arg Ser Ser Asp Arg Ser						
8	13		18		23	
cga gat tca tct cat gaa aga acg gag tct cag ctc act cct tgt att						269
Arg Asp Ser Ser His Glu Arg Thr Glu Ser Gln Leu Thr Pro Cys Ile						
24	29		34		39	
aga aat gtg act tct cca aca cga cag cac cat gtt gaa cga gaa aaa						317
Arg Asn Val Thr Ser Pro Thr Arg Gln His His Val Glu Arg Glu Lys						
40	45		50		55	
gat cac agt tcc tct cgt cca agc agt ccg cgt cct caa aaa gca tcc						365
Asp His Ser Ser Ser Arg Pro Ser Ser Pro Arg Pro Gln Lys Ala Ser						
56	61		66		71	
cca aat ggt tcc att agc agt gct ggg aac agc agc aga aac agt agt						413
Pro Asn Gly Ser Ile Ser Ser Ala Gly Asn Ser Ser Arg Asn Ser Ser						
72	77		82		87	
cag tca agt tca gat ggt agc tgt aag aca gct ggg gag atg gtg ttt						461
Gln Ser Ser Ser Asp Gly Ser Cys Lys Thr Ala Gly Glu Met Val Phe						
88	93		98		103	
gta tat gaa aat gca aaa gaa gga gct cgg aat ata aga acg tca gaa						509
Val Tyr Glu Asn Ala Lys Glu Gly Ala Arg Asn Ile Arg Thr Ser Glu						
104	109		114		119	
cga gtg aca cta ata gtg gat aac act aga ttt gtt gta gac cca tcc						557
Arg Val Thr Leu Ile Val Asp Asn Thr Arg Phe Val Val Asp Pro Ser						
120	125		130		135	
att ttt act gca cag cca aat aca atg ttg ggc agg atg ttt gga tct						605
Ile Phe Thr Ala Gln Pro Asn Thr Met Leu Gly Arg Met Phe Gly Ser						
136	141		146		151	
ggc cga gaa cat aac ttt aca cga ccc aat gag aaa gga gag tat gag						653
Gly Arg Glu His Asn Phe Thr Arg Pro Asn Glu Lys Gly Glu Tyr Glu						
152	157		162		167	
gtg gca gag gga att ggt tcc act gtg ttt cga gcg att ctg gat tac						701
Val Ala Glu Gly Ile Gly Ser Thr Val Phe Arg Ala Ile Leu Asp Tyr						
168	173		178		183	
tat aaa aca gga ata atc cgt tgt cct gat ggc ata tct att cct gaa						749
Tyr Lys Thr Gly Ile Ile Arg Cys Pro Asp Gly Ile Ser Ile Pro Glu						
184	189		194		199	
ctg aga gaa gca tgt gac tat ctt tgt atc tct ttt gaa tat agc act						797
Leu Arg Glu Ala Cys Asp Tyr Leu Cys Ile Ser Phe Glu Tyr Ser Thr						

200	205	210	215	
att aaa tgt aga gat ctc agt gcc cta atg cat gag tta tca aat gat				845
Ile Lys Cys Arg Asp Leu Ser Ala Leu Met His Glu Leu Ser Asn Asp				
216	221	226	231	
ggt gct cgt aga caa ttt gaa ttt tat ctg gaa gaa atg atc ctc cct				893
Gly Ala Arg Arg Gln Phe Glu Phe Tyr Leu Glu Glu Met Ile Leu Pro				
232	237	242	247	
ctc atg gta gct agt gcc cag agt ggg gaa cgg gaa tgt cat ata gtg				941
Leu Met Val Ala Ser Ala Gln Ser Gly Glu Arg Glu Cys His Ile Val				
248	253	258	263	
gtg ctt aca gat gat gat gtg gtt gat tgg gat gaa gaa tat cca cca				989
Val Leu Thr Asp Asp Asp Val Val Asp Trp Asp Glu Glu Tyr Pro Pro				
264	269	274	279	
cag atg gga gaa gaa tat tca caa att att tat agc aca aaa tta tat				1037
Gln Met Gly Glu Glu Tyr Ser Gln Ile Ile Tyr Ser Thr Lys Leu Tyr				
280	285	290	295	
aga ttt ttc aag tat att gaa aac aga gat gtg gcc aag tca gtt ttg				1085
Arg Phe Phe Lys Tyr Ile Glu Asn Arg Asp Val Ala Lys Ser Val Leu				
296	301	306	311	
aag gag agg ggt ctt aag aag att aga ttg gga ata gaa ggt tat cct				1133
Lys Glu Arg Gly Leu Lys Lys Ile Arg Leu Gly Ile Glu Gly Tyr Pro				
312	317	322	327	
acc tac aaa gaa aaa gta aag aaa agg cct gga ggc cgc cca gaa gtg				1181
Thr Tyr Lys Glu Lys Val Lys Lys Arg Pro Gly Gly Arg Pro Glu Val				
328	333	338	343	
atc tac aac tat gtc caa aga ccc ttt att cga atg tcc tgg gag aag				1229
Ile Tyr Asn Tyr Val Gln Arg Pro Phe Ile Arg Met Ser Trp Glu Lys				
344	349	354	359	
gaa gaa gga aag agt cgg cat gta gac ttt cag tgt gta aag agt aaa				1277
Glu Glu Gly Lys Ser Arg His Val Asp Phe Gln Cys Val Lys Ser Lys				
360	365	370	375	
tct atc acc aat ctt gca gca gct gca gca gac att ccc cag gac cag				1325
Ser Ile Thr Asn Leu Ala Ala Ala Ala Ala Asp Ile Pro Gln Asp Gln				
376	381	386	391	
ctg gta gtc atg cat cca act cca caa gtg gat gag ctg gat att ctc				1373
Leu Val Val Met His Pro Thr Pro Gln Val Asp Glu Leu Asp Ile Leu				
392	397	402	407	
cct atc cat ccc cct tct ggc aac agt gac ctc gat cct gat gca cag				1421
Pro Ile His Pro Pro Ser Gly Asn Ser Asp Leu Asp Pro Asp Ala Gln				
408	413	418	423	
aat cca atg ctg tga tgctgatctt ccttgaaacc atagcatgct actcttcaca				1476
Asn Pro Met Leu *				
424				



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gtgacgttgt actctcctca ttctgcaactg caaggccact cttcttcatt gtgagatgca 1536
cataacaatg tttaggatat tgcagtgtag gcttttttaa agaccaaagg tagctgaatg 1596
gttttttttt aaatgagtac aactctagca ttttgaagtt ccagttgtaa atgtatttgt 1656
ttaccagtag gtttgtgaaa ttggttcttt gtatggggga tggtcctttt tcacacagct 1716
aggtcttttc agaagtgggtg gaaattggca gctgggggtac tttcagtttg gactgatatt 1776
catcacacct cagataaaat gcagagtaat atatagttgc actttataaa tgggtgggttaa 1836
atggaaatgt tcaagccatt ttatagttgt gatgcacaat ataatttaag tgcttctgtc 1896
aaagtattcc tccagtacaa tttgtatagt ttgctgccct tgatgagcaa aaagtattta 1956
tcttgggctt atctaaatga tcacgatgag atttaatgcc catatcttac cagttcagta 2016
atctccagag ccatttcacc ctttagagtg agtcacatgc agggagtgtg aatgtcagag 2076
gtggtttatt atccagtctg ccttaccctt aatctgttca cagatattta tttactaatg 2136
cctttctttc taaagagtta tgggatagga aaatgaaagt gtttgctcct catttactaa 2196
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<210> 892
<211> 1265
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (193)..(1134)

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<400> 892
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cgatttcgta ggaaggagag ttcttcttcc aggtggtttc ctgcagactg cctgctaggg 120
ctcagaggac cagcttcttc cctgctgtct cctgagccca gtccctcttg gccatcacat 180
tccccttgcc ct      atg gcg gcc ctc aca gac ctc tca ttt atg tat cgc 228
                    Met Ala Ala Leu Thr Asp Leu Ser Phe Met Tyr Arg
                      1             5             10

tgg ttc aag aac tgc aat ctg gtt ggc aac ctc tca gag aag tac gtc 276
Trp Phe Lys Asn Cys Asn Leu Val Gly Asn Leu Ser Glu Lys Tyr Val
 13             18             23             28

ttc atc aca ggc tgt gac tct ggc ttc ggg aac ctg ctg gcc aaa cag 324

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Phe	Ile	Thr	Gly	Cys	Asp	Ser	Gly	Phe	Gly	Asn	Leu	Leu	Ala	Lys	Gln		
29					34					39					44		
ctg	gtt	gat	cgg	ggc	atg	cag	gtg	ctg	gct	gct	tgc	ttc	act	gag	gag	372	
Leu	Val	Asp	Arg	Gly	Met	Gln	Val	Leu	Ala	Ala	Cys	Phe	Thr	Glu	Glu		
45					50					55					60		
gga	tcc	cag	aaa	ctt	cag	cgg	gat	acc	tcc	tat	cgg	ctg	cag	acc	acc	420	
Gly	Ser	Gln	Lys	Leu	Gln	Arg	Asp	Thr	Ser	Tyr	Arg	Leu	Gln	Thr	Thr		
61					66					71					76		
cta	ctg	gat	gtc	acc	aag	agc	gaa	agc	atc	aag	gcg	gcg	gcc	cag	tgg	468	
Leu	Leu	Asp	Val	Thr	Lys	Ser	Glu	Ser	Ile	Lys	Ala	Ala	Ala	Gln	Trp		
77					82					87					92		
gtg	agg	gac	aaa	gtg	ggc	gaa	caa	ggc	ctc	tgg	gcc	ctg	gtg	aac	aat	516	
Val	Arg	Asp	Lys	Val	Gly	Glu	Gln	Gly	Leu	Trp	Ala	Leu	Val	Asn	Asn		
93					98					103					108		
gct	ggt	gtg	ggc	ctg	ccc	agt	ggt	ccc	aac	gaa	tgg	ctg	acc	aag	gat	564	
Ala	Gly	Val	Gly	Leu	Pro	Ser	Gly	Pro	Asn	Glu	Trp	Leu	Thr	Lys	Asp		
109					114					119					124		
gac	ttt	gtg	aag	gtg	att	aat	gtg	aac	ctg	gtg	gga	ctg	atc	gaa	gtg	612	
Asp	Phe	Val	Lys	Val	Ile	Asn	Val	Asn	Leu	Val	Gly	Leu	Ile	Glu	Val		
125					130					135					140		
acc	ctt	cac	atg	ctg	ccc	atg	gtc	aag	aga	gcc	cgg	ggc	agg	gtt	gtc	660	
Thr	Leu	His	Met	Leu	Pro	Met	Val	Lys	Arg	Ala	Arg	Gly	Arg	Val	Val		
141					146					151					156		
aac	atg	tcc	agc	tct	ggt	ggt	cgt	gtg	gct	gtc	att	ggt	ggt	ggc	tac	708	
Asn	Met	Ser	Ser	Ser	Gly	Gly	Arg	Val	Ala	Val	Ile	Gly	Gly	Gly	Tyr		
157					162					167					172		
tgc	gtc	tcc	aag	ttt	ggc	gtt	gag	gcc	ttc	tct	gac	agc	ata	agg	cgt	756	
Cys	Val	Ser	Lys	Phe	Gly	Val	Glu	Ala	Phe	Ser	Asp	Ser	Ile	Arg	Arg		
173					178					183					188		
gag	ctc	tac	tac	ttt	ggg	gtg	aaa	gtc	tgc	atc	att	gag	cca	ggg	aac	804	
Glu	Leu	Tyr	Tyr	Phe	Gly	Val	Lys	Val	Cys	Ile	Ile	Glu	Pro	Gly	Asn		
189					194					199					204		
tat	cgg	aca	gcc	att	ctc	ggc	aag	gag	aac	ctg	gag	tca	cgc	atg	cga	852	
Tyr	Arg	Thr	Ala	Ile	Leu	Gly	Lys	Glu	Asn	Leu	Glu	Ser	Arg	Met	Arg		
205					210					215					220		
aag	ctt	tgg	gag	agg	ctg	cct	cag	gag	acc	cgg	gac	agc	tac	gga	gag	900	
Lys	Leu	Trp	Glu	Arg	Leu	Pro	Gln	Glu	Thr	Arg	Asp	Ser	Tyr	Gly	Glu		
221					226					231					236		
gat	tat	ttc	cgc	atc	tat	act	gac	aag	tta	aaa	aac	ata	atg	cag	gtg	948	
Asp	Tyr	Phe	Arg	Ile	Tyr	Thr	Asp	Lys	Leu	Lys	Asn	Ile	Met	Gln	Val		
237					242					247					252		
gca	gag	ccc	aga	gtc	aga	gat	gtc	atc	aac	agc	atg	gag	cat	gct	att	996	
Ala	Glu	Pro	Arg	Val	Arg	Asp	Val	Ile	Asn	Ser	Met	Glu	His	Ala	Ile		

253	258	263	268	
gtt tcc cgg agc cct cgc atc cgc tac aac cct ggc ctg gat gcc aaa				1044
Val Ser Arg Ser Pro Arg Ile Arg Tyr Asn Pro Gly Leu Asp Ala Lys				
269	274	279	284	
ctc ctc tac atc cct ctg gct aag ttg ccc acc cct gtg aca gat ttc				1092
Leu Leu Tyr Ile Pro Leu Ala Lys Leu Pro Thr Pro Val Thr Asp Phe				
285	290	295	300	
atc cta agc cgg tac ctt cca agg cca gcg gac agt gtc taa actgggg				1141
Ile Leu Ser Arg Tyr Leu Pro Arg Pro Ala Asp Ser Val *				
301	306	311		
aggatcaatg ggtcagtgga gcctagaagt gggggaggaa ggaaggaccg tggggtcaca				1201
aaaggtggta tcgggttatcc tggggggcatt ggctgcaaag gaagcttggc tcacttgaca				1261
ccca				1265

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 <212> DNA  
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<220>  
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 <222> (1)..(1707)

<400> 893

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Met Ala Ser Lys Pro Ala Ala Gly Lys Ser Arg Gly Glu Lys Arg Lys				
1	5	10		
agg gtg gtg ctg aca ctg aag gag aag att gac atc tgc acg cgc ctg				96
Arg Val Val Leu Thr Leu Lys Glu Lys Ile Asp Ile Cys Thr Arg Leu				
17	22	27	32	
gag aag ggc gag agc cgg aag gca ctg atg cag gag tac aat gtg ggc				144
Glu Lys Gly Glu Ser Arg Lys Ala Leu Met Gln Glu Tyr Asn Val Gly				
33	38	43	48	
atg tcc acc ctc tac gac atc agg gcc cac aag gcg cag ctg ctc cgg				192
Met Ser Thr Leu Tyr Asp Ile Arg Ala His Lys Ala Gln Leu Leu Arg				
49	54	59	64	
ttc ttc gcc agc tcc gac tcc aac aag gcg ctg gag cag cgg cgc acg				240
Phe Phe Ala Ser Ser Asp Ser Asn Lys Ala Leu Glu Gln Arg Arg Thr				
65	70	75	80	
ctg cac acg ccc aag ctg gag cac ctg gac cgc gtc ctg tac gag tgg				288
Leu His Thr Pro Lys Leu Glu His Leu Asp Arg Val Leu Tyr Glu Trp				
81	86	91	96	

ttc ctg ggg aag cgc tcc gag ggc gtc ccc gtg tca ggc ccc atg ctc	336
Phe Leu Gly Lys Arg Ser Glu Gly Val Pro Val Ser Gly Pro Met Leu	
97 102 107 112	
atc gag aag gcc aag gac ttt tac gag cag atg cag ctc act gag ccc	384
Ile Glu Lys Ala Lys Asp Phe Tyr Glu Gln Met Gln Leu Thr Glu Pro	
113 118 123 128	
tgc gtg ttc tcc gga ggg tgg ctt tgg cgc ttt aag gcc aga cac ggc	432
Cys Val Phe Ser Gly Gly Trp Leu Trp Arg Phe Lys Ala Arg His Gly	
129 134 139 144	
att aaa aag cta gat gca tcc agt gaa aag cag tca gcc gac cac cag	480
Ile Lys Lys Leu Asp Ala Ser Ser Glu Lys Gln Ser Ala Asp His Gln	
145 150 155 160	
gcc gcg gag cag ttc tgt gcg ttt ttc agg agc ttg gct gct gag cac	528
Ala Ala Glu Gln Phe Cys Ala Phe Phe Arg Ser Leu Ala Ala Glu His	
161 166 171 176	
ggg ctg tcc gcc gag cag gtt tac aac gct gat gag acc ggc ctt ttc	576
Gly Leu Ser Ala Glu Gln Val Tyr Asn Ala Asp Glu Thr Gly Leu Phe	
177 182 187 192	
tgg cgg tgc ctg cca aat ccc act ccg gaa ggc ggg gct gtg cct ggc	624
Trp Arg Cys Leu Pro Asn Pro Thr Pro Glu Gly Gly Ala Val Pro Gly	
193 198 203 208	
ccc aag cag ggc aag gac cgg ctg acc gtg ctg atg tgt gcc aac gcc	672
Pro Lys Gln Gly Lys Asp Arg Leu Thr Val Leu Met Cys Ala Asn Ala	
209 214 219 224	
acg ggc tcc cac agg ctc aag ccc ttg gcc atc ggg aag tgc agc ggt	720
Thr Gly Ser His Arg Leu Lys Pro Leu Ala Ile Gly Lys Cys Ser Gly	
225 230 235 240	
ccc agg gct ttc aaa ggc atc cag cac ctg ccc gtc gcc tat aag gcc	768
Pro Arg Ala Phe Lys Gly Ile Gln His Leu Pro Val Ala Tyr Lys Ala	
241 246 251 256	
cag ggg aac gcc tgg gtg gac aag gag att ttt tcc gat tgg ttc cat	816
Gln Gly Asn Ala Trp Val Asp Lys Glu Ile Phe Ser Asp Trp Phe His	
257 262 267 272	
cat atc ttt gtg ccc tcg gtg aga gag cac ttc aga acc ata ggt ttg	864
His Ile Phe Val Pro Ser Val Arg Glu His Phe Arg Thr Ile Gly Leu	
273 278 283 288	
ccg gaa gac agc aaa gcc gtt ctc ttg ctg gac agc tcc cgg gct cac	912
Pro Glu Asp Ser Lys Ala Val Leu Leu Leu Asp Ser Ser Arg Ala His	
289 294 299 304	
ccg cag gag gcc gag ctg gtg tcc agt aac gtt ttc acc atc ttc ctg	960
Pro Gln Glu Ala Glu Leu Val Ser Ser Asn Val Phe Thr Ile Phe Leu	
305 310 315 320	
cct gcc agc gtg gcc tca ttg gtg cag ccc atg gag cag ggc att cgg	1008

Pro Ala Ser Val Ala Ser Leu Val Gln Pro Met Glu Gln Gly Ile Arg	
321 326 331 336	
aga gat ttc atg agg aac ttc att aac cct ccg gtc ccc ctg cag ggc	1056
Arg Asp Phe Met Arg Asn Phe Ile Asn Pro Pro Val Pro Leu Gln Gly	
337 342 347 352	
ccc cac gcc cgc tac aac atg aac gat gcc ata ttc agc gtg gcc tgt	1104
Pro His Ala Arg Tyr Asn Met Asn Asp Ala Ile Phe Ser Val Ala Cys	
353 358 363 368	
gcc tgg aac gca gtc cct agc cac gtc ttc agg cgg gcc tgg agg aag	1152
Ala Trp Asn Ala Val Pro Ser His Val Phe Arg Arg Ala Trp Arg Lys	
369 374 379 384	
ctg tgg ccg tcg gtt gcg ttt gcc gaa ggc tcc tcc tct gag gag gag	1200
Leu Trp Pro Ser Val Ala Phe Ala Glu Gly Ser Ser Ser Glu Glu Glu	
385 390 395 400	
ttg gag gca gag tgc ttc cca gtg aag ccc cac aac aag tcc ttt gca	1248
Leu Glu Ala Glu Cys Phe Pro Val Lys Pro His Asn Lys Ser Phe Ala	
401 406 411 416	
cac atc ctg gag ctt gtg aag gaa ggc tcc tcc tgc ccg ggc cag ctt	1296
His Ile Leu Glu Leu Val Lys Glu Gly Ser Ser Cys Pro Gly Gln Leu	
417 422 427 432	
cgc cag cgc cag gcc gcc agc tgg ggg gta gcg gga agg gag gca gaa	1344
Arg Gln Arg Gln Ala Ala Ser Trp Gly Val Ala Gly Arg Glu Ala Glu	
433 438 443 448	
ggg gga cgg ccc cct gct gcc acg tcg cca gca gag gtt gtg tgg agt	1392
Gly Gly Arg Pro Pro Ala Ala Thr Ser Pro Ala Glu Val Val Trp Ser	
449 454 459 464	
tca gaa aag act ccg aaa gct gac cag gac ggc aga gga gat cct ggt	1440
Ser Glu Lys Thr Pro Lys Ala Asp Gln Asp Gly Arg Gly Asp Pro Gly	
465 470 475 480	
gag ggc gag gag gtg gcc tgg gag cag gcg gcc gtg gcc ttt gac gca	1488
Glu Gly Glu Glu Val Ala Trp Glu Gln Ala Ala Val Ala Phe Asp Ala	
481 486 491 496	
gtc ctg cgc ttt gcg gag cgg cag cca tgc ttc agt gcg cag gaa gtg	1536
Val Leu Arg Phe Ala Glu Arg Gln Pro Cys Phe Ser Ala Gln Glu Val	
497 502 507 512	
ggg cag ctg cgg gcg ctg cgt gcc gtg ttc cgg agc cag cag cag gtg	1584
Gly Gln Leu Arg Ala Leu Arg Ala Val Phe Arg Ser Gln Gln Gln Val	
513 518 523 528	
agg agg cgg cgt ggt gcc ctc ggg gct gtg gtc aag gtt gaa gcc ctc	1632
Arg Arg Arg Arg Gly Ala Leu Gly Ala Val Val Lys Val Glu Ala Leu	
529 534 539/ 544	
cag gag ggc cct ggt gcc tgt ggg gcc aca gct cag tct ccc ttg ccc	1680
Gln Glu Gly Pro Gly Gly Cys Gly Ala Thr Ala Gln Ser Pro Leu Pro	

545

550

555

560

tgc tca tcc aca gca ggt gac aac tga tggct tctctgccct gccctggcca 1732  
 Cys Ser Ser Thr Ala Gly Asp Asn \*  
 561 566

ctggccctgt ttctcccaca ccttgagtg gcatggctct gtgccccgac cccacctgag 1792  
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 aagccagagc cgcaccctgg ctggaatggg ggccaggctg agccgatctg gtctcgtgtt 2032  
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Thr His Phe Gly Phe Glu Thr Val Ser Glu Glu Glu Lys Gly Gly Lys
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Val Tyr Gln Val Phe Glu Ser Val Ala Lys Lys Tyr Asp Val Met Asn
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Ile Tyr Thr Ile Ala Phe Gly Ile Arg Asn Val Thr His Ile Asp Gln	
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 Arg Tyr Ile Ser Leu Ile Leu Ala Val Gln Ile Ala Tyr Leu Val Gln  
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Thr Glu Trp Leu Ile Ile Thr Leu Val Arg Gly Ser Gly Glu Gly Gly				
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cct cag ggc aac agc agc gca ggc tgg gcc gtg gcc tcc ccc tgt gcc				746
Pro Gln Gly Asn Ser Ser Ala Gly Trp Ala Val Ala Ser Pro Cys Ala				
188	193	198	203	
atc gcc aac atg gac ttt gtc atg gca ctc atc tac gtc atg ctg ctg				794
Ile Ala Asn Met Asp Phe Val Met Ala Leu Ile Tyr Val Met Leu Leu				
204	209	214	219	
ctg ctg ggt gcc ttc ctg ggg gcc tgg ccc gcc ctg tgt ggc cgc tac				842
Leu Leu Gly Ala Phe Leu Gly Ala Trp Pro Ala Leu Cys Gly Arg Tyr				
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aag cgc tgg cgt aag cat ggg gtc ttt gtg ctc ctc acc aca gcc acc				890
Lys Arg Trp Arg Lys His Gly Val Phe Val Leu Leu Thr Thr Ala Thr				
236	241	246	251	
tcc gtt gcc ata tgg gtg gtg tgg atc gtc atg tat act tac ggc aac				938
Ser Val Ala Ile Trp Val Val Trp Ile Val Met Tyr Thr Tyr Gly Asn				
252	257	262	267	
aag cag cac aac agt ccc acc tgg gat gac ccc acg ctg gcc atc gcc				986
Lys Gln His Asn Ser Pro Thr Trp Asp Asp Pro Thr Leu Ala Ile Ala				
268	273	278	283	
ctc gcc gcc aat gcc tgg gcc ttc gtc ctc ttc tac gtc atc ccc gag				1034
Leu Ala Ala Asn Ala Trp Ala Phe Val Leu Phe Tyr Val Ile Pro Glu				
284	289	294	299	
gtc tcc cag gtg acc aag tcc agc cca gag caa agc tac cag ggg gac				1082
Val Ser Gln Val Thr Lys Ser Ser Pro Glu Gln Ser Tyr Gln Gly Asp				
300	305	310	315	
atg tac ccc acc cgg ggc gtg ggc tat gag acc atc ctg aaa gag cag				1130
Met Tyr Pro Thr Arg Gly Val Gly Tyr Glu Thr Ile Leu Lys Glu Gln				
316	321	326	331	
aag ggt cag agc atg ttc gtg gag aac aag gcc ttt tcc atg gat gag				1178
Lys Gly Gln Ser Met Phe Val Glu Asn Lys Ala Phe Ser Met Asp Glu				
332	337	342	347	



ccg gtt gca gct aag agg ccg gtg tca cca tac agc ggg tac aat ggg	1226
Pro Val Ala Ala Lys Arg Pro Val Ser Pro Tyr Ser Gly Tyr Asn Gly	
348 353 358 363	
cag ctg ctg acc agt gtg tac cag ccc act gag atg gcc ctg atg cac	1274
Gln Leu Leu Thr Ser Val Tyr Gln Pro Thr Glu Met Ala Leu Met His	
364 369 374 379	
aaa gtt ccg tcc gaa gga gct tac gac atc atc ctc cca cgg gcc acc	1322
Lys Val Pro Ser Glu Gly Ala Tyr Asp Ile Ile Leu Pro Arg Ala Thr	
380 385 390 395	
gcc aac agc cag gtg atg ggc agt gcc aac tcg acc ctg cgg gct gaa	1370
Ala Asn Ser Gln Val Met Gly Ser Ala Asn Ser Thr Leu Arg Ala Glu	
396 401 406 411	
gac atg tac tcg gcc cag agc cac cag gcg gcc aca ccg ccg aaa gac	1418
Asp Met Tyr Ser Ala Gln Ser His Gln Ala Ala Thr Pro Pro Lys Asp	
412 417 422 427	
ggc aag aac tct cag gtc ttt aga aac ccc tac gtg tgg gac tga gtc	1466
Gly Lys Asn Ser Gln Val Phe Arg Asn Pro Tyr Val Trp Asp *	
428 433 438	
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aagggcctcc ctctctgcca gtgtttgggt ggggtgtcatg ggtgtcccca cccactcctc	1646
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tgagaattca gagaaactgc tgagtgaacca ctgaacgaaa agatctaatac ttaaggctta	180

cgcggtgttcc atccaccaca tcagaaca	atg tcg tat gtt ttt gta aat gat	232
	Met Ser Tyr Val Phe Val Asn Asp	
	1 5	
tct tct cag act aac gtg ccc ttg ctg caa gcc tgt att gat ggg gac	280	
Ser Ser Gln Thr Asn Val Pro Leu Leu Gln Ala Cys Ile Asp Gly Asp		
9 14 19 24		
ttt aat tat tcc aag cgg ctt ttg gaa agt ggc ttt gac cca aat att	328	
Phe Asn Tyr Ser Lys Arg Leu Leu Glu Ser Gly Phe Asp Pro Asn Ile		
25 30 35 40		
cgt gac agc agg ggc aga aca ggc ctt cac ctt gca gca gct cga ggg	376	
Arg Asp Ser Arg Gly Arg Thr Gly Leu His Leu Ala Ala Ala Arg Gly		
41 46 51 56		
aat gta gac atc tgc cag tta ctg cat aaa ttc ggt gcc gat ctt ctg	424	
Asn Val Asp Ile Cys Gln Leu Leu His Lys Phe Gly Ala Asp Leu Leu		
57 62 67 72		
gcc aca gat tat caa gga aac aca gct ctt cac ctc tgt ggc cat gtg	472	
Ala Thr Asp Tyr Gln Gly Asn Thr Ala Leu His Leu Cys Gly His Val		
73 78 83 88		
gat act atc caa ttt ttg gtt tcc aat gga ctc aaa att gat att tgc	520	
Asp Thr Ile Gln Phe Leu Val Ser Asn Gly Leu Lys Ile Asp Ile Cys		
89 94 99 104		
aat cat caa ggt gct acc cct tta gtt ctg gca aag cgc aga gga gta	568	
Asn His Gln Gly Ala Thr Pro Leu Val Leu Ala Lys Arg Arg Gly Val		
105 110 115 120		
aat aaa gat gtc atc cga ttg ctg gaa tct ttg gaa gaa cag gag gtg	616	
Asn Lys Asp Val Ile Arg Leu Leu Glu Ser Leu Glu Glu Gln Glu Val		
121 126 131 136		
aaa gga ttt aac aga gga acc cac tcg aaa ctg gag acc atg caa aca	664	
Lys Gly Phe Asn Arg Gly Thr His Ser Lys Leu Glu Thr Met Gln Thr		
137 142 147 152		
gct gag agt gaa agt gcc atg gaa agc cat tca ctc ctc aat ccc aac	712	
Ala Glu Ser Glu Ser Ala Met Glu Ser His Ser Leu Leu Asn Pro Asn		
153 158 163 168		
ctg cag caa ggt gaa gga gtc ctc tcc agc ttc cga acc acg tgg cag	760	
Leu Gln Gln Gly Glu Gly Val Leu Ser Ser Phe Arg Thr Thr Trp Gln		
169 174 179 184		
gag ttt gtg gag gat ctg ggc ttc tgg aga gta ttg ctg ttg atc ttc	808	
Glu Phe Val Glu Asp Leu Gly Phe Trp Arg Val Leu Leu Leu Ile Phe		
185 190 195 200		
gtc att gct ttg ctg tct ctt ggc att gct tat tat gtg agt ggg gtg	856	
Val Ile Ala Leu Leu Ser Leu Gly Ile Ala Tyr Tyr Val Ser Gly Val		
201 206 211 216		



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cttcagggggc cgtccaggac tacagagctg tttcacccta ccttggtctc aatctcttcc 180  
ccc atg ctc gaa ggt gcg gag ctg tac ttc aac gtg gac cat ggc tac 228  
Met Leu Glu Gly Ala Glu Leu Tyr Phe Asn Val Asp His Gly Tyr  
1 5 10  
ctg gag ggc ctg gtt cga gga tgc aag gcc agc ctc ctg acc cag caa 276  
Leu Glu Gly Leu Val Arg Gly Cys Lys Ala Ser Leu Leu Thr Gln Gln  
16 21 26 31  
gac tat atc aac ctg gtc cag tgt gag acc cta gaa gac ctg aaa att 324  
Asp Tyr Ile Asn Leu Val Gln Cys Glu Thr Leu Glu Asp Leu Lys Ile  
32 37 42 47  
cat ctc cag act act gat tat ggt aac ttt ttg gct aat cac aca aat 372  
His Leu Gln Thr Thr Asp Tyr Gly Asn Phe Leu Ala Asn His Thr Asn  
48 53 58 63  
cct ctt act gtt tcc aaa att gac act gag atg agg aaa aga cta tgt 420  
Pro Leu Thr Val Ser Lys Ile Asp Thr Glu Met Arg Lys Arg Leu Cys  
64 69 74 79  
gga gaa ttt gag tat ttc cgg aat cat tcc ctg gag ccc ctc agc aca 468  
Gly Glu Phe Glu Tyr Phe Arg Asn His Ser Leu Glu Pro Leu Ser Thr  
80 85 90 95  
ttt ctc acc tat atg acg tgc agt tat atg ata gac aat gtg att ctg 516  
Phe Leu Thr Tyr Met Thr Cys Ser Tyr Met Ile Asp Asn Val Ile Leu  
96 101 106 111  
ctg atg aat ggt gca ttg cag aaa aaa tct gtg aaa gaa att ctg ggg 564  
Leu Met Asn Gly Ala Leu Gln Lys Lys Ser Val Lys Glu Ile Leu Gly  
112 117 122 127

aag tgc cac ccc ttg ggc cgt ttc aca gaa atg gaa gct gtc aac att	612
Lys Cys His Pro Leu Gly Arg Phe Thr Glu Met Glu Ala Val Asn Ile	
128 133 138 143	
gca gag aca cct tca gat ctc ttt aat gcc att ctg atc gaa acg cca	660
Ala Glu Thr Pro Ser Asp Leu Phe Asn Ala Ile Leu Ile Glu Thr Pro	
144 149 154 159	
tta gct cca ttc ttc caa gac tgc atg tct gaa aat gct cta gat gaa	708
Leu Ala Pro Phe Phe Gln Asp Cys Met Ser Glu Asn Ala Leu Asp Glu	
160 165 170 175	
ctg aat att gaa ttg cta cgc aat aaa cta tac aag tct tac ctt gag	756
Leu Asn Ile Glu Leu Leu Arg Asn Lys Leu Tyr Lys Ser Tyr Leu Glu	
176 181 186 191	
gca ttc tat aaa ttc tgt aag aat cat ggt gat gtc aca gca gaa gtt	804
Ala Phe Tyr Lys Phe Cys Lys Asn His Gly Asp Val Thr Ala Glu Val	
192 197 202 207	
atg tgt ccc att ctt gag ttt gag gcc gac aga cgt gct ttt atc atc	852
Met Cys Pro Ile Leu Glu Phe Glu Ala Asp Arg Arg Ala Phe Ile Ile	
208 213 218 223	
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Thr Leu Asn Ser Phe Gly Thr Glu Leu Ser Lys Glu Asp Arg Glu Thr	
224 229 234 239	
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Leu Tyr Pro Thr Phe Gly Lys Leu Tyr Pro Glu Gly Leu Arg Leu Leu	
240 245 250 255	
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Ala Gln Ala Glu Asp Phe Asp Gln Met Lys Asn Val Ala Asp His Tyr	
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gga gta tac aaa cct tta ttt gaa gct gta ggt ggc agt ggg gga aag	1044
Gly Val Tyr Lys Pro Leu Phe Glu Ala Val Gly Gly Ser Gly Gly Lys	
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aca ttg gag gac gtg ttt tac gag cgt gag gta caa atg aat gtg ctg	1092
Thr Leu Glu Asp Val Phe Tyr Glu Arg Glu Val Gln Met Asn Val Leu	
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gca ttc aac aga cag ttc cac tac ggt gtg ttt tat gca tat gta aag	1140
Ala Phe Asn Arg Gln Phe His Tyr Gly Val Phe Tyr Ala Tyr Val Lys	
304 309 314 319	
ctg aag gaa cag gaa att aga aat att gtg tgg ata gca gaa tgt att	1188
Leu Lys Glu Gln Glu Ile Arg Asn Ile Val Trp Ile Ala Glu Cys Ile	
320 325 330 335	
tca cag agg cat cga act aaa atc aac agt tac att cca att tta taa	1236
Ser Gln Arg His Arg Thr Lys Ile Asn Ser Tyr Ile Pro Ile Leu *	
336 341 346 351	

cccaagtaag gttctcaaat gtagaaaatt ataatgtta aaaggaagtt attgaagaaa	1296
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gaatttagta gtagtagggg cgcctctaga ggatccaagc ttacgtacgc gtgcatgcga	2136
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gagcgcaggc aggacaggct tagagaagac gcgggtccca gcgcttgggc cagggacgtc	240
ccaccccgt cctctgtcgc tggagaaccg ccgggccgag ccactgggag aagcaggcca	300
gagccttcca gggcctccgg cccgtggacc cgaggagg	353
atg agc tgg ctt ttt	
Met Ser Trp Leu Phe	

ccc ctg acc aag agc gcc tcc tcc tcc gcg gct ggg tcc ccc ggt ggc	401
Pro Leu Thr Lys Ser Ala Ser Ser Ser Ala Ala Gly Ser Pro Gly Gly	
6 11 16 21	
ctc acc agc ctc cag cag cag aag cag cgc ctg atc gag tcc ctc cgg	449
Leu Thr Ser Leu Gln Gln Gln Lys Gln Arg Leu Ile Glu Ser Leu Arg	
22 27 32 37	
aac tca cac tcc agt ata gcc gaa ata cag aaa gat gtg gaa tac aga	497
Asn Ser His Ser Ser Ile Ala Glu Ile Gln Lys Asp Val Glu Tyr Arg	
38 43 48 53	
ttg cca ttc acc ata aac aac ctg aca att aac att aat ata ttg ctt	545
Leu Pro Phe Thr Ile Asn Asn Leu Thr Ile Asn Ile Asn Ile Leu Leu	
54 59 64 69	
cct cca cag ttt cct cag gaa aaa cca gtg atc agt gtt tat cca cca	593
Pro Pro Gln Phe Pro Gln Glu Lys Pro Val Ile Ser Val Tyr Pro Pro	
70 75 80 85	
ata cga cat cac tta atg gat aaa caa gga gtg tat gtt acc tct cca	641
Ile Arg His His Leu Met Asp Lys Gln Gly Val Tyr Val Thr Ser Pro	
86 91 96 101	
tta gta aac aat ttt aca atg cac tca gat ctt gga aaa att att cag	689
Leu Val Asn Asn Phe Thr Met His Ser Asp Leu Gly Lys Ile Ile Gln	
102 107 112 117	
agt ctg ttg gat gag ttt tgg aag aat cct cca gtt tta gct cct act	737
Ser Leu Leu Asp Glu Phe Trp Lys Asn Pro Pro Val Leu Ala Pro Thr	
118 123 128 133	
tca aca gca ttt cct tat cta tac agt aac cca agt ggg atg tct cct	785
Ser Thr Ala Phe Pro Tyr Leu Tyr Ser Asn Pro Ser Gly Met Ser Pro	
134 139 144 149	
tat gct tct cag ggt ttt cca ttt ctt cct cca tat cct cca caa gaa	833
Tyr Ala Ser Gln Gly Phe Pro Phe Leu Pro Pro Tyr Pro Pro Gln Glu	
150 155 160 165	
gca aac agg agt atc act tct tta tct gtt gct gac act gtt tct tct	881
Ala Asn Arg Ser Ile Thr Ser Leu Ser Val Ala Asp Thr Val Ser Ser	
166 171 176 181	
tca aca aca agt cat acc aca gcc aag cct gcc gct cct tca ttt ggt	929
Ser Thr Thr Ser His Thr Thr Ala Lys Pro Ala Ala Pro Ser Phe Gly	
182 187 192 197	
gtc ctt tca aat ctg cca tta ccc att ccc aca gtg gat gct tca ata	977
Val Leu Ser Asn Leu Pro Leu Pro Ile Pro Thr Val Asp Ala Ser Ile	
198 203 208 213	
ccg aca agc caa aat ggt ttt ggg tac aag atg cca gat gtc cct gat	1025
Pro Thr Ser Gln Asn Gly Phe Gly Tyr Lys Met Pro Asp Val Pro Asp	
214 219 224 229	

gca ttt cca gaa ctc tca gaa cta agt gtg tca caa ctc aca gat atg	1073
Ala Phe Pro Glu Leu Ser Glu Leu Ser Val Ser Gln Leu Thr Asp Met	
230 235 240 245	
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Asn Glu Gln Glu Glu Val Leu Leu Glu Gln Phe Leu Thr Leu Pro Gln	
246 251 256 261	
cta aaa caa att att acc gac aaa gat gac tta gta aaa agt att gag	1169
Leu Lys Gln Ile Ile Thr Asp Lys Asp Asp Leu Val Lys Ser Ile Glu	
262 267 272 277	
gaa cta gca aga aaa aat ctc ctt ttg gag ccc agc ttg gaa gcc aaa	1217
Glu Leu Ala Arg Lys Asn Leu Leu Leu Glu Pro Ser Leu Glu Ala Lys	
278 283 288 293	
aga caa act gtt tta gat aag tat gaa tta ctt aca cag atg aag tcc	1265
Arg Gln Thr Val Leu Asp Lys Tyr Glu Leu Leu Thr Gln Met Lys Ser	
294 299 304 309	
act ttc gaa aag aag atg caa agg cag cat gaa ctt agt gag agc tgt	1313
Thr Phe Glu Lys Lys Met Gln Arg Gln His Glu Leu Ser Glu Ser Cys	
310 315 320 325	
agt gca agt gcc ctt cag gca aga ttg aaa gta gct gca cat gaa gct	1361
Ser Ala Ser Ala Leu Gln Ala Arg Leu Lys Val Ala Ala His Glu Ala	
326 331 336 341	
gag gaa gaa tct gat aat att gca gaa gac ttc ttg gag gga aag atg	1409
Glu Glu Glu Ser Asp Asn Ile Ala Glu Asp Phe Leu Glu Gly Lys Met	
342 347 352 357	
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Glu Ile Asp Asp Phe Leu Ser Ser Phe Met Glu Lys Arg Thr Ile Cys	
358 363 368 373	
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His Cys Arg Arg Ala Lys Glu Glu Lys Leu Gln Gln Ala Ile Ala Met	
374 379 384 389	
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His Ser Gln Phe His Ala Pro Leu *	
390 395	
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cct	ctg	gatt	c	ctgga	agaaa	ggg	ttg	gtt	c	ctc	cag	cacc	ccc	cag	cat	cc	cg	gaaa				476
atg	ggg	agc	aag	gct	ctg	cca	gcg	ccc	atc	ccg	ctc	cac	ccg	tcg	ctg							524
Met	Gly	Ser	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Pro	Leu	His	Pro	Ser	Leu							
1				5					10					15								
cag	ctc	acc	aat	tac	tcc	ttc	ctg	cag	gcc	gtg	aac	acc	ttc	ccg	gcc							572
Gln	Leu	Thr	Asn	Tyr	Ser	Phe	Leu	Gln	Ala	Val	Asn	Thr	Phe	Pro	Ala							
17					22				27					32								
acg	gtg	gac	cac	ctg	cag	ggc	ctg	tac	ggg	ctc	agc	gcg	gta	cag	acc							620
Thr	Val	Asp	His	Leu	Gln	Gly	Leu	Tyr	Gly	Leu	Ser	Ala	Val	Gln	Thr							
33				38					43					48								
atg	cac	atg	aac	cac	tgg	acg	ctg	ggg	tat	ccc	aat	gtg	cac	gag	atc							668
Met	His	Met	Asn	His	Trp	Thr	Leu	Gly	Tyr	Pro	Asn	Val	His	Glu	Ile							
49				54					59					64								
acc	cg	c	tcc	acc	atc	acg	gag	atg	gcg	gcg	gcg	cag	ggc	ctc	gtg	gac						716
Thr	Arg	Ser	Thr	Ile	Thr	Glu	Met	Ala	Ala	Ala	Gln	Gly	Leu	Val	Asp							
65				70					75					80								
gcg	cg	c	ttc	ccc	ttc	ccg	gcc	ctg	cct	ttt	acc	acc	cac	cta	ttc	cac						764
Ala	Arg	Phe	Pro	Phe	Pro	Ala	Leu	Pro	Phe	Thr	Thr	His	Leu	Phe	His							
81				86					91					96								
ccc	aag	cag	ggg	gcc	att	gcc	cac	gtc	ctc	cca	gcc	ctg	cac	aag	gac							812
Pro	Lys	Gln	Gly	Ala	Ile	Ala	His	Val	Leu	Pro	Ala	Leu	His	Lys	Asp							
97				102					107					112								
cgg	ccc	cgt	ttt	gac	ttt	gcc	aat	ttg	gcg	gtg	gct	gcc	acg	caa	gag							860
Arg	Pro	Arg	Phe	Asp	Phe	Ala	Asn	Leu	Ala	Val	Ala	Ala	Thr	Gln	Glu							
113				118					123					128								
gat	ccg	cct	aag	atg	gga	gac	ctg	agc	aag	ctg	agc	cca	gga	ctg	ggg							908
Asp	Pro	Pro	Lys	Met	Gly	Asp	Leu	Ser	Lys	Leu	Ser	Pro	Gly	Leu	Gly							
129				134					139					144								
agc	ccc	atc	tcg	ggc	ctc	agt	aaa	ttg	act	ccg	gac	aga	aag	ccc	tct							956
Ser	Pro	Ile	Ser	Gly	Leu	Ser	Lys	Leu	Thr	Pro	Asp	Arg	Lys	Pro	Ser							
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Arg	Gly	Arg	Leu	Pro	Ser	Lys	Thr	Lys	Lys	Glu	Phe	Ile	Cys	Lys	Phe							
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tgc	ggc	aga	cac	ttt	acc	aaa	tcc	tac	aat	ttg	ctc	atc	cat	gag	agg							1052
Cys	Gly	Arg	His	Phe	Thr	Lys	Ser	Tyr	Asn	Leu	Leu	Ile	His	Glu	Arg							
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acc	cac	acg	gac	gag	agg	ccg	tac	acg	tgt	gac	atc	tgc	cac	aag	gcc							1100
Thr	His	Thr	Asp	Glu	Arg	Pro	Tyr	Thr	Cys	Asp	Ile	Cys	His	Lys	Ala							
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Phe Arg Arg Gln Asp His Leu Arg Asp His Arg Tyr Ile His Ser Lys	
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Glu Lys Pro Phe Lys Cys Gln Glu Cys Gly Lys Gly Phe Cys Gln Ser	
225 230 235 240	
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Arg Thr Leu Ala Val His Lys Thr Leu His Met Gln Thr Ser Ser Pro	
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Thr Ala Ala Ser Ser Ala Ala Lys Cys Ser Gly Glu Thr Val Ile Cys	
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Gly Gly Thr Ala *	
273	
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atg aac cgc aag aaa ctg cag aag ctg acg gac acc tta acc aaa aat	225
Met Asn Arg Lys Lys Leu Gln Lys Leu Thr Asp Thr Leu Thr Lys Asn	
1 5 10 15	
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Cys	Lys	His	Leu	Phe	Arg	Gly	Phe	Asp	Lys	Asp	Asn	Asp	Gly	Cys	Val		
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Leu	Glu	Glu	Lys	Met	Lys	Tyr	Cys	Phe	Glu	Val	Phe	Asp	Leu	Asn	Gly		
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Asp	Gly	Phe	Ile	Ser	Lys	Glu	Glu	Met	Phe	His	Met	Leu	Lys	Asn	Ser		
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Leu	Val	Glu	Ile	Thr	Leu	Lys	Lys	Met	Asp	His	Asp	His	Asp	Gly	Lys		
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Leu	Ser	Phe	Ala	Asp	Tyr	Glu	Leu	Ala	Val	Arg	Glu	Glu	Thr	Leu	Leu		
113					118					123					128		
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Leu	Glu	Ala	Phe	Gly	Pro	Cys	Leu	Pro	Asp	Pro	Lys	Ser	Gln	Met	Glu		
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Phe	Glu	Ala	Gln	Val	Phe	Lys	Asp	Pro	Asn	Glu	Phe	Asn	Asp	Met	*		
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ga																839	

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 ccgcgggtccc acgagagggg gtatttttcg tcagccaag atg ggt tcc aaa agg 174  
 Met Gly Ser Lys Arg  
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 aga aat ttg agc tgt agt gaa agg cat cag aaa tta gta gat gaa aac 222  
 Arg Asn Leu Ser Cys Ser Glu Arg His Gln Lys Leu Val Asp Glu Asn  
 6 11 16 21  
 tac tgc aaa aaa tta cat gtc caa gct cta aaa aac gtc aac agt caa 270  
 Tyr Cys Lys Lys Leu His Val Gln Ala Leu Lys Asn Val Asn Ser Gln  
 22 27 32 37  
 atc agg aat caa atg gtg cag aat gaa aat gat aac cgt gtt cag cgc 318  
 Ile Arg Asn Gln Met Val Gln Asn Glu Asn Asp Asn Arg Val Gln Arg  
 38 43 48 53  
 aag caa ttt ctc aga tta tta caa aat gaa caa ttt gag ttg gat atg 366  
 Lys Gln Phe Leu Arg Leu Leu Gln Asn Glu Gln Phe Glu Leu Asp Met  
 54 59 64 69  
 gaa gag gcc att caa aag gca gaa gaa aac aag aga ttg aaa gaa ctc 414  
 Glu Glu Ala Ile Gln Lys Ala Glu Glu Asn Lys Arg Leu Lys Glu Leu  
 70 75 80 85  
 cag ctc aaa caa gaa gaa aaa ctg gct atg gaa ttg gca aaa ctg aaa 462  
 Gln Leu Lys Gln Glu Glu Lys Leu Ala Met Glu Leu Ala Lys Leu Lys  
 86 91 96 101  
 cat gaa agt cta aag gac gaa aag atg agg caa caa gta aga gaa aac 510  
 His Glu Ser Leu Lys Asp Glu Lys Met Arg Gln Gln Val Arg Glu Asn  
 102 107 112 117  
 agc att gag ctt aga gaa ttg gag aag aaa tta aaa gca gct tac atg 558  
 Ser Ile Glu Leu Arg Glu Leu Glu Lys Lys Leu Lys Ala Ala Tyr Met  
 118 123 128 133  
 aat aaa gaa agg gca gct cag att gct gaa aag gat gcc att aaa tat 606  
 Asn Lys Glu Arg Ala Ala Gln Ile Ala Glu Lys Asp Ala Ile Lys Tyr  
 134 139 144 149  
 gaa caa atg aaa cgt gat gct gaa ata gcc aaa acc atg atg gaa gaa 654  
 Glu Gln Met Lys Arg Asp Ala Glu Ile Ala Lys Thr Met Met Glu Glu  
 150 155 160 165  
 cac aag aga ata ata aag gaa gag aat gct gca gaa gac aaa cga aac 702  
 His Lys Arg Ile Ile Lys Glu Glu Asn Ala Ala Glu Asp Lys Arg Asn  
 166 171 176 181  
 aaa gcg aaa gca cag tac tat ctt gac tta gag aaa caa ctt gaa gaa 750

Lys Ala Lys Ala Gln Tyr Tyr Leu Asp Leu Glu Lys Gln Leu Glu Glu	
182 187 192 197	
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Gln Glu Lys Lys Lys Gln Glu Ala Tyr Glu Gln Leu Leu Lys Glu Lys	
198 203 208 213	
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Leu Met Ile Asp Glu Ile Val Arg Lys Ile Tyr Glu Glu Asp Gln Leu	
214 219 224 229	
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Glu Lys Gln Gln Lys Leu Glu Lys Met Asn Ala Met Arg Arg Tyr Ile	
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Glu Glu Phe Gln Lys Glu Gln Ala Leu Trp Arg Lys Lys Lys Arg Glu	
246 251 256 261	
gag atg gaa gaa gaa aac aga aaa atc ata gag ttt gct aac atg cag	990
Glu Met Glu Glu Glu Asn Arg Lys Ile Ile Glu Phe Ala Asn Met Gln	
262 267 272 277	
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Gln Gln Arg Glu Glu Asp Arg Met Ala Lys Val Gln Glu Asn Glu Glu	
278 283 288 293	
aaa agg cta cag ctt cag aat gcg ttg aca cag aaa tta gaa gaa atg	1086
Lys Arg Leu Gln Leu Gln Asn Ala Leu Thr Gln Lys Leu Glu Glu Met	
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310 315 320 325	
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Glu Glu Gln Ala Glu Ile Tyr Lys Ser Lys Leu Lys Glu Glu Ala Glu	
326 331 336 341	
aag aaa ttg aga aag caa aaa gag atg aag caa gat ttt gaa gaa caa	1230
Lys Lys Leu Arg Lys Gln Lys Glu Met Lys Gln Asp Phe Glu Glu Gln	
342 347 352 357	
atg gcc ttg aag gaa tta gtg cta cag gct gca aaa gag gaa gag gag	1278
Met Ala Leu Lys Glu Leu Val Leu Gln Ala Ala Lys Glu Glu Glu Glu	
358 363 368 373	
aac ttt aga aaa act atg cta gct aaa ttt gct gag gat gat cga ata	1326
Asn Phe Arg Lys Thr Met Leu Ala Lys Phe Ala Glu Asp Asp Arg Ile	
374 379 384 389	
gaa tta atg aat gct cag aaa caa aga atg aag cag ctg gaa cac agg	1374
Glu Leu Met Asn Ala Gln Lys Gln Arg Met Lys Gln Leu Glu His Arg	
390 395 400 405	
agg gct gtg gaa aaa ctt att gaa gag cgt cgc caa caa ttc ctt gca	1422
Arg Ala Val Glu Lys Leu Ile Glu Glu Arg Arg Gln Gln Phe Leu Ala	

406	411	416	421	
gac aaa caa cgt gaa cta gaa gag tgg cag ttg cag caa agg cgg caa				1470
Asp Lys Gln Arg Glu Leu Glu Glu Trp Gln Leu Gln Gln Arg Arg Gln				
422	427	432	437	
gga ttt att aat gca att att gaa gaa gaa agg cta aaa ctt ctt aaa				1518
Gly Phe Ile Asn Ala Ile Ile Glu Glu Glu Arg Leu Lys Leu Leu Lys				
438	443	448	453	
gag cat gct aca aac tta cta ggc tat ctc cct aaa gga gta ttt aaa				1566
Glu His Ala Thr Asn Leu Leu Gly Tyr Leu Pro Lys Gly Val Phe Lys				
454	459	464	469	
aaa gag gat gat att gat ctg ctt ggt gaa gag ttc agg aaa gta tat				1614
Lys Glu Asp Asp Ile Asp Leu Leu Gly Glu Glu Phe Arg Lys Val Tyr				
470	475	480	485	
caa caa agg agt gaa att tgt gaa gag aaa tga tatcatca aaattgggta				1665
Gln Gln Arg Ser Glu Ile Cys Glu Glu Lys *				
486	491	496		
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gtggcattag gtatccattg tctgtttgga ttttgtaaat catcactgaa tttcataact				1785
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c   atg tat ctg caa ggg ccg agg aaa tta atg acc caa gga ggc tat      526
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cag agg cca act gca gag gaa ctg gaa cag agg aac att ttg aaa cct      622
Gln Arg Pro Thr Ala Glu Glu Leu Glu Gln Arg Asn Ile Leu Lys Pro
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cgg aat gaa caa gag gaa cag gag gag aag aga gag atc aag agg agg      670
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Leu Thr Arg Lys Leu Ser Gln Arg Pro Thr Val Glu Glu Leu Arg Glu
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Gln Asp Tyr Asp Arg Arg Ala Asp Lys Pro Trp Thr Arg Leu Thr Ala
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gca gac aaa gct gcc atc cga aag gag ctc aat gaa ttc aaa agc act      862
Ala Asp Lys Ala Ala Ile Arg Lys Glu Leu Asn Glu Phe Lys Ser Thr
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Phe Leu Ala Ser Glu Cys Thr Glu Leu Pro Lys Ala Glu Lys Trp Arg	
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Arg Gln Ile Ile Gly Glu Ile Ser Lys Lys Val Ala Gln Ile Gln Asn	
47 52 57 62	
gct ggt tta ggt gaa ttt cga att cgt gac ctg aat gat gaa att aac	540
Ala Gly Leu Gly Glu Phe Arg Ile Arg Asp Leu Asn Asp Glu Ile Asn	
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Lys Leu Leu Arg Glu Lys Gly His Trp Glu Val Arg Ile Lys Glu Leu	
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Gly Gly Pro Asp Tyr Gly Lys Val Gly Pro Lys Met Leu Asp His Glu	
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111 116 121 126	
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Lys Asp Leu Pro Gly Val Arg Glu Leu Phe Glu Lys Glu Pro Leu Pro	
127 132 137 142	
cct ccc aga aag aca cgt gct gag ctc atg aag gca atc gat ttt gag	780
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Tyr Tyr Gly Tyr Leu Asp Glu Asp Asp Gly Val Ile Val Pro Leu Glu	
159 164 169 174	
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Gln Glu Tyr Glu Lys Lys Leu Arg Ala Glu Leu Val Glu Lys Trp Lys	
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Met Leu Glu Pro Gln Glu Asn				
1 5				
ggc gtg att gac cta cca gat tat gag cat gta gaa gat gaa act ttt				221
Gly Val Ile Asp Leu Pro Asp Tyr Glu His Val Glu Asp Glu Thr Phe				
8 13 18 23				
cct cct ttc cca cct cca gcc tct cca gag aga caa gat ggt gaa gga				269
Pro Pro Phe Pro Pro Pro Ala Ser Pro Glu Arg Gln Asp Gly Glu Gly				
24 29 34 39				
act gag cct gat gaa gag tca gga aat gga gca cct gtt cct gta cct				317
Thr Glu Pro Asp Glu Glu Ser Gly Asn Gly Ala Pro Val Pro Val Pro				
40 45 50 55				

cca aag aga aca gtt aaa aga aat ata ccc aag ctg gat gct cag aga	365
Pro Lys Arg Thr Val Lys Arg Asn Ile Pro Lys Leu Asp Ala Gln Arg	
56 61 66 71	
tta att tca gag aga gga ctt cca gcc tta agg cat gta ttt gat aag	413
Leu Ile Ser Glu Arg Gly Leu Pro Ala Leu Arg His Val Phe Asp Lys	
72 77 82 87	
gca aaa ttc aaa ggt aaa ggt cat gag gct gaa gac ttg aag atg cta	461
Ala Lys Phe Lys Gly Lys Gly His Glu Ala Glu Asp Leu Lys Met Leu	
88 93 98 103	
atc aga cac atg gag cac tgg gca cat agg cta ttc cct aaa ctg cag	509
Ile Arg His Met Glu His Trp Ala His Arg Leu Phe Pro Lys Leu Gln	
104 109 114 119	
ttt gag gat ttt att gac aga gtt gaa tac ctg gga agt aaa aag gaa	557
Phe Glu Asp Phe Ile Asp Arg Val Glu Tyr Leu Gly Ser Lys Lys Glu	
120 125 130 135	
gtt cag acc tgt tta aaa cga att cga ctt gat ctc cct att tta cat	605
Val Gln Thr Cys Leu Lys Arg Ile Arg Leu Asp Leu Pro Ile Leu His	
136 141 146 151	
gaa gat ttt gtt agc aat aat gat gaa gtt gcg gag aat aat gaa cat	653
Glu Asp Phe Val Ser Asn Asn Asp Glu Val Ala Glu Asn Asn Glu His	
152 157 162 167	
gat gtc act tct act gaa tta gat ccc ttt ctg aca aac tta tct gaa	701
Asp Val Thr Ser Thr Glu Leu Asp Pro Phe Leu Thr Asn Leu Ser Glu	
168 173 178 183	
agt gag atg ttt gct tct gag tta agt aga agc cta aca gaa gag caa	749
Ser Glu Met Phe Ala Ser Glu Leu Ser Arg Ser Leu Thr Glu Glu Gln	
184 189 194 199	
caa caa aga att gag aga aat aaa caa ctg gcc ttg gaa aga agg cag	797
Gln Gln Arg Ile Glu Arg Asn Lys Gln Leu Ala Leu Glu Arg Arg Gln	
200 205 210 215	
gca aag ctg ctg agt aat agt cag acc cta gga aat gat atg tta atg	845
Ala Lys Leu Leu Ser Asn Ser Gln Thr Leu Gly Asn Asp Met Leu Met	
216 221 226 231	
aat aca ccc agg gca cac acg gtt gaa gag gtt aat act gat gag gat	893
Asn Thr Pro Arg Ala His Thr Val Glu Glu Val Asn Thr Asp Glu Asp	
232 237 242 247	
caa aag gag gag tca aat gga tta aac gaa gac att ctg gac aat cca	941
Gln Lys Glu Glu Ser Asn Gly Leu Asn Glu Asp Ile Leu Asp Asn Pro	
248 253 258 263	
tgt aat gat gct att gcc aat act tta aat gaa gag gaa aca ctg ctg	989
Cys Asn Asp Ala Ile Ala Asn Thr Leu Asn Glu Glu Glu Thr Leu Leu	
264 269 274 279	
gac cag tct ttt aaa aat gtg caa cag caa ctt gat gct aca tcc aga	1037

Asp Gln Ser Phe Lys Asn Val Gln Gln Gln Leu Asp Ala Thr Ser Arg  
 280 285 290 295

aat att act gaa gct aga taa gt ttccattaag agaaaatgta tctgttaagt 1090  
 Asn Ile Thr Glu Ala Arg \*  
 296 301

catcgctcctg caagcttggc gttactatgt attttttctt cttggagtga aaatccttag 1150

atagtaaaac tggtatagat tattgtttta aaaaaaaaaa aaaaaa 1196

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 gccgctcggc gcctgcgcag tgaagaccgc ggcgagccgc gcgc atg cgt gca ggc 116  
 Met Arg Ala Gly  
 1

ccg gag ccc cag gcg ctg gtg ggg cag aaa cgc ggc gcc ctg cgt ctt 164  
 Pro Glu Pro Gln Ala Leu Val Gly Gln Lys Arg Gly Ala Leu Arg Leu  
 5 10 15 20

ctg gtt ccg agg ctg gtc ctc acc gtt tcc gct ccg gcg gaa gtg agg 212  
 Leu Val Pro Arg Leu Val Leu Thr Val Ser Ala Pro Ala Glu Val Arg  
 21 26 31 36

agg agg gtc ctt cga ccc gtg ctg agc tgg atg gac cgc gag acg cgc 260  
 Arg Arg Val Leu Arg Pro Val Leu Ser Trp Met Asp Arg Glu Thr Arg  
 37 42 47 52

gcc ctc gcc gac agc cac ttc cga ggc ctg ggg gtc gat gtc ccc ggc 308  
 Ala Leu Ala Asp Ser His Phe Arg Gly Leu Gly Val Asp Val Pro Gly  
 53 58 63 68

gtc ggc cag gct ccg ggc cgg gta gcc ttc gtc tcg gag ccg ggc gcc 356  
 Val Gly Gln Ala Pro Gly Arg Val Ala Phe Val Ser Glu Pro Gly Ala  
 69 74 79 84

ttc tcc tac gcc gac ttt gtg cgg ggc ttc ttg ctg ccc aac ctg ccc 404  
 Phe Ser Tyr Ala Asp Phe Val Arg Gly Phe Leu Leu Pro Asn Leu Pro

85	90	95	100	
tgc gtg ttt tcc agc gcc ttc acg cag ggc tgg ggc agc cgg cgg cgc				452
Cys Val Phe Ser Ser Ala Phe Thr Gln Gly Trp Gly Ser Arg Arg Arg				
101	106	111	116	
tgg gtg acg ccc gcg ggg agg ccc gac ttc gac cac ctg cta cgg acc				500
Trp Val Thr Pro Ala Gly Arg Pro Asp Phe Asp His Leu Leu Arg Thr				
117	122	127	132	
tac gga gac gtg gtt gta cca gtt gca aac tgt ggg gtc cag gaa tac				548
Tyr Gly Asp Val Val Val Pro Val Ala Asn Cys Gly Val Gln Glu Tyr				
133	138	143	148	
aac tcg aac ccc aaa gag cac atg act ctc aga gac tac atc acc tac				596
Asn Ser Asn Pro Lys Glu His Met Thr Leu Arg Asp Tyr Ile Thr Tyr				
149	154	159	164	
tgg aaa gag tac ata cag gcg ggc tac tcc tct ccc agg ggc tgt ctc				644
Trp Lys Glu Tyr Ile Gln Ala Gly Tyr Ser Ser Pro Arg Gly Cys Leu				
165	170	175	180	
tac ctc aaa gac tgg cac ttg tgc agg gac ttt ccg gtg gag gac gtt				692
Tyr Leu Lys Asp Trp His Leu Cys Arg Asp Phe Pro Val Glu Asp Val				
181	186	191	196	
ttc acc ctg cct gtg tac ttc tcg tcc gac tgg ctg aat gag ttc tgg				740
Phe Thr Leu Pro Val Tyr Phe Ser Ser Asp Trp Leu Asn Glu Phe Trp				
197	202	207	212	
gat gca ctg gat gtg gat gac tac cgc ttt gtc tac gcg ggg cct gcg				788
Asp Ala Leu Asp Val Asp Asp Tyr Arg Phe Val Tyr Ala Gly Pro Ala				
213	218	223	228	
ggc agc tgg tcc ccg ttc cat gct gac atc ttc cgc tcc ttc agc tgg				836
Gly Ser Trp Ser Pro Phe His Ala Asp Ile Phe Arg Ser Phe Ser Trp				
229	234	239	244	
tct gtc aat gtc tgt ggg agg aag aag tgg ctc ctc ttc ccc cca ggg				884
Ser Val Asn Val Cys Gly Arg Lys Lys Trp Leu Leu Phe Pro Pro Gly				
245	250	255	260	
cag gaa gag gcc ctg cgg gac cgc cac ggc aac ctg ccc tac gac gtg				932
Gln Glu Glu Ala Leu Arg Asp Arg His Gly Asn Leu Pro Tyr Asp Val				
261	266	271	276	
acc tcc cca gca ctc tgc gac aca cac ctg cac cca ggg aac cag ctt				980
Thr Ser Pro Ala Leu Cys Asp Thr His Leu His Pro Gly Asn Gln Leu				
277	282	287	292	
gct ggc cca ccc ttg gag atc acg cag gaa gcg ggc gag atg gtg ttt				1028
Ala Gly Pro Pro Leu Glu Ile Thr Gln Glu Ala Gly Glu Met Val Phe				
293	298	303	308	
gtg ccc agt ggc tgg cac cac cag gtg cac aac ctg gga tga caccatc				1077
Val Pro Ser Gly Trp His His Gln Val His Asn Leu Gly *				
309	314	319		

tccatcaacc acaactgggt caatggcttc aacctggcca acatgtggcg cttcttgag 1137  
caggagctat gcgccgtgca ggaggaggtc agcgagtga gggactccat gcccgactgg 1197  
caccaccact gccaggtcat catgaggtcc tgctcgggca tcaactttga agagttttac 1257  
cacttcctca aggtcatcgc tgagaagagg ctcttggtcc tgaggaggc agccgctgag 1317  
gacggtgctg ggttgggttt cgaacaggca gcctttgatg ttgggcgcat cacagaggtg 1377  
ctggcctcct tggttgcgca ccccgacttc cagagagtgg acaccagcgc gttctcacca 1437  
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agggacccaa gatggggatg gtggcccttc tgacctgcaa gcagggcctg ctgggggnagc 1737  
tcgggagaat ggggtgccagg gacctnggct tcttttgggg gggcccctgg ccttccttta 1797  
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atg acc agg tat tgg gag ggc tgg tct caa cac att tca ctc ttc agg 164  
Met Thr Arg Tyr Trp Glu Gly Trp Ser Gln His Ile Ser Leu Phe Arg  
1 5 10 15  
  
gag cca gtt gat aat ctg agt oct gag gag cgt gat gcc cgc aca gtt 212  
Glu Pro Val Asp Asn Leu Ser Pro Glu Glu Arg Asp Ala Arg Thr Val  
17 22 27 32  
  
ttc tgt atg cag tta gct gcc cga att cgg cct cga gat ctg gag gac 260  
Phe Cys Met Gln Leu Ala Ala Arg Ile Arg Pro Arg Asp Leu Glu Asp  
33 38 43 48  
  
ttt ttc tct gct gta ggc aag gtt cgc gat gta cgt atc atc tca gat 308  
Phe Phe Ser Ala Val Gly Lys Val Arg Asp Val Arg Ile Ile Ser Asp

49	54	59	64	
cgg aac tca cgt cgt tct aag ggc att gcc tac gtg gaa ttc tgt gaa				356
Arg Asn Ser Arg Arg Ser Lys Gly Ile Ala Tyr Val Glu Phe Cys Glu				
65	70	75	80	
atc cag tct gtg cca ctg gcc att ggg ctg act ggg cag cgg ttg ctg				404
Ile Gln Ser Val Pro Leu Ala Ile Gly Leu Thr Gly Gln Arg Leu Leu				
81	86	91	96	
gga gtg cct atc att gta cag gct tca cag gca gag aaa aac cga ctg				452
Gly Val Pro Ile Ile Val Gln Ala Ser Gln Ala Glu Lys Asn Arg Leu				
97	102	107	112	
gca gcc atg gcc aac aac ctg caa aag ggc aat ggt gga cca atg cgc				500
Ala Ala Met Ala Asn Asn Leu Gln Lys Gly Asn Gly Gly Pro Met Arg				
113	118	123	128	
ctc tat gtg ggt tcc ctg cac ttc aat atc act gaa gac atg ctc cgg				548
Leu Tyr Val Gly Ser Leu His Phe Asn Ile Thr Glu Asp Met Leu Arg				
129	134	139	144	
ggc atc ttt gag ccc ttt ggt aaa att gat aat att gtc ctg atg aag				596
Gly Ile Phe Glu Pro Phe Gly Lys Ile Asp Asn Ile Val Leu Met Lys				
145	150	155	160	
gac tca gat aca ggc cgc tct aaa ggt tat ggt ttc atc acg ttc tct				644
Asp Ser Asp Thr Gly Arg Ser Lys Gly Tyr Gly Phe Ile Thr Phe Ser				
161	166	171	176	
gat tct gag tgt gcc cgg cgg gcc ctg gaa cag ttg aat ggg ttt gag				692
Asp Ser Glu Cys Ala Arg Arg Ala Leu Glu Gln Leu Asn Gly Phe Glu				
177	182	187	192	
ctt gct ggt cga cct atg agg gtt ggc cat gtg act gag cga ctg gat				740
Leu Ala Gly Arg Pro Met Arg Val Gly His Val Thr Glu Arg Leu Asp				
193	198	203	208	
ggt ggc aca gac atc act ttt cct gat ggg gac cag gag ctg gat ctg				788
Gly Gly Thr Asp Ile Thr Phe Pro Asp Gly Asp Gln Glu Leu Asp Leu				
209	214	219	224	
gga tca gca ggt gga cgt ttt cag ctc atg gca aaa ctg gca gaa ggc				836
Gly Ser Ala Gly Gly Arg Phe Gln Leu Met Ala Lys Leu Ala Glu Gly				
225	230	235	240	
gct gga atc caa ctg cca agc act gct gct gct gct gct gcc gcc gcc				884
Ala Gly Ile Gln Leu Pro Ser Thr Ala Ala Ala Ala Ala Ala Ala				
241	246	251	256	
gcc gcc ccg gct gct gcc ttg caa ctg aat gga gca gtt ccc ttg ggg				932
Ala Ala Pro Ala Ala Ala Leu Gln Leu Asn Gly Ala Val Pro Leu Gly				
257	262	267	272	
gcc ctg aat cca gca gct ctg act gct ctg agt cca gcc ctg aac ctt				980
Ala Leu Asn Pro Ala Ala Leu Thr Ala Leu Ser Pro Ala Leu Asn Leu				
273	278	283	288	







170	175	180	185	
gac cag gag ggg gca gaa ggc acc ctg tgc tgg ctg ggc acc gtc ttc				1047
Asp Gln Glu Gly Ala Glu Gly Thr Leu Ser Trp Leu Gly Thr Val Phe				
186	191	196	201	
ggc gtg ctg gct agc ctc tgt gtc tgc ctc aac gcc atc tac acc acg				1095
Gly Val Leu Ala Ser Leu Cys Val Ser Leu Asn Ala Ile Tyr Thr Thr				
202	207	212	217	
aag gtg ctc ccg gcg gtg gac ggc agc atc tgg cgc ctg act ttc tac				1143
Lys Val Leu Pro Ala Val Asp Gly Ser Ile Trp Arg Leu Thr Phe Tyr				
218	223	228	233	
aac aac gtc aac gcc tgc atc ctc ttc ctg ccc ctg ctc ctg ctg ctc				1191
Asn Asn Val Asn Ala Cys Ile Leu Phe Leu Pro Leu Leu Leu Leu Leu				
234	239	244	249	
ggg gag ctt cag gcc ctg cgt gac ttt gcc cag ctg ggc agt gcc cac				1239
Gly Glu Leu Gln Ala Leu Arg Asp Phe Ala Gln Leu Gly Ser Ala His				
250	255	260	265	
ttc tgg ggg atg atg acg ctg ggc ggc ctg ttt ggc ttt gcc atc ggc				1287
Phe Trp Gly Met Met Thr Leu Gly Gly Leu Phe Gly Phe Ala Ile Gly				
266	271	276	281	
tac gtg aca gga ctg cag atc aag ttc acc agt ccg ctg acc cac aat				1335
Tyr Val Thr Gly Leu Gln Ile Lys Phe Thr Ser Pro Leu Thr His Asn				
282	287	292	297	
gtg tgc ggc acg gcc aag gcc tgt gcc cag aca gtg ctg gcc gtg ctc				1383
Val Ser Gly Thr Ala Lys Ala Cys Ala Gln Thr Val Leu Ala Val Leu				
298	303	308	313	
tac tac gag gag acc aag agc ttc ctc tgg tgg acg agc aac atg atg				1431
Tyr Tyr Glu Glu Thr Lys Ser Phe Leu Trp Trp Thr Ser Asn Met Met				
314	319	324	329	
gtg ctg ggc ggc tcc tcc gcc tac acc tgg gtc agg ggc tgg gag atg				1479
Val Leu Gly Gly Ser Ser Ala Tyr Thr Trp Val Arg Gly Trp Glu Met				
330	335	340	345	
aag aag act ccg gag gag ccc agc ccc aaa gac agc gag aag agc gcc				1527
Lys Lys Thr Pro Glu Glu Pro Ser Pro Lys Asp Ser Glu Lys Ser Ala				
346	351	356	361	
atg ggg gtg tga gca ccacaggcac cctggatggc ccggccccgg ggcccgtaca				1582
Met Gly Val *				
362				
caggcagggc cagcacagta gtgaaggcgg tctcctggac ccagaaagcg tgctgtggtg				1642
tggactgggt gctacttata gacccaatca gaatacgggtg gttgagaagg aaccagtgtt				1702
tacaagtaat atcagaaagt tgaaggaacc agtggtttaca agtaatacca gaaagttgcc				1762
aaacccttct ctatcctctc gtattttctga gtttttgtcc ttcccagagg agcaccctag				1822

tgagagttga accccttccct tctgcctcca gggcctgtct gcctccacat cactctgagg 1882  
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 actcagggga gatggcccta ccacagccac ctggagaggg ttgggaagcc ttccgtctgc 2002  
 ggtgggcagg cagcctcacc ctgggcccac agaccggcct tcctttggag gaaagtgtgg 2062  
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 ctgggcagtg gcctgggaat ggggtggatt gtgagaaagt gctcaccatc tatacacct 2182  
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 gctgctgctc cgcggtggag tcaccgcacc gctcccggga tc atg gtg ttc tac 174  
 Met Val Phe Tyr  
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ttc acc agc agc agc gtt aat tca tct gcc tac act att tac atg gga 222  
 Phe Thr Ser Ser Ser Val Asn Ser Ser Ala Tyr Thr Ile Tyr Met Gly  
 5 10 15 20

aaa gat aaa tat gaa aat gaa gat ctg atc aag cat ggc tgg cct gaa 270  
 Lys Asp Lys Tyr Glu Asn Glu Asp Leu Ile Lys His Gly Trp Pro Glu  
 21 26 31 36

gat atc tgg ttt cat gtg gac aaa ctg tct tgc gct cat gta tac ctt 318  
 Asp Ile Trp Phe His Val Asp Lys Leu Ser Ser Ala His Val Tyr Leu  
 37 42 47 52

cga tta cat aag gga gag aat ata gaa gac atc cca aag gaa gtg ctg 366  
 Arg Leu His Lys Gly Glu Asn Ile Glu Asp Ile Pro Lys Glu Val Leu  
 53 58 63 68

atg gac tgt gcc cac ctt gtg aag gcc aat agc att caa ggc tgc aag 414  
 Met Asp Cys Ala His Leu Val Lys Ala Asn Ser Ile Gln Gly Cys Lys  
 69 74 79 84

atg aac aac gtt aat gtg gta tat acg ccg tgg tct aac ctg aag aaa	462
Met Asn Asn Val Asn Val Val Tyr Thr Pro Trp Ser Asn Leu Lys Lys	
85 90 95 100	
aca gct gac atg gat gtg ggg cag ata ggc ttt cac agg cag aag gat	510
Thr Ala Asp Met Asp Val Gly Gln Ile Gly Phe His Arg Gln Lys Asp	
101 106 111 116	
gta aaa att gtg aca gtg gag aag aaa gta aat gag atc ctg aac cga	558
Val Lys Ile Val Thr Val Glu Lys Lys Val Asn Glu Ile Leu Asn Arg	
117 122 127 132	
tta gaa aag acc aaa gtc gag cgg ttc tca gac cta gca gca gag aaa	606
Leu Glu Lys Thr Lys Val Glu Arg Phe Ser Asp Leu Ala Ala Glu Lys	
133 138 143 148	
gaa tgc aga gat cgt gaa gag agg aat gag aaa aaa gcc caa att cag	654
Glu Cys Arg Asp Arg Glu Glu Arg Asn Glu Lys Lys Ala Gln Ile Gln	
149 154 159 164	
gaa atg aaa aag aga gaa aaa gaa gaa atg aag aag aag agg gaa atg	702
Glu Met Lys Lys Arg Glu Lys Glu Glu Met Lys Lys Lys Arg Glu Met	
165 170 175 180	
gat gaa ctt agg agc tat tca tca cta atg aaa gtt gaa aat atg tct	750
Asp Glu Leu Arg Ser Tyr Ser Ser Leu Met Lys Val Glu Asn Met Ser	
181 186 191 196	
tca aat cag gat ggc aat gat tca gat gaa ttc atg taa aaggagaaaa	799
Ser Asn Gln Asp Gly Asn Asp Ser Asp Glu Phe Met *	
197 202 207	
ggagaaaagg acctttgaaa gatgtgaatg tagagacaat tgcagacctt ttggtttcat	859
ctgtgttctg aaatataaaa tacaaccaa attctacctt catcctaccc agaaattatt	919
gattttcaag ttttaaaaaa attgtacctt ttttgctgac agaaaaggat cagatatgta	979
taaaatagtt gaacttgaca gcatataact taaagtgaaa atgtttttgc cagaacatgt	1039
cttggtacct tgtgaaagca ggctgccctt gttcttgaga tagactttaa aatgaaccag	1099
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Glu Ser Ala Asp Glu	Gln Lys Gly Ser	Glu Ala Glu Gly Leu	Lys Gly	
207	212	217	222	
gat ata att tct gtg	att atc gcc aat aaa	cct gag gcc agc tta	gag	899
Asp Ile Ile Ser Val	Ile Ile Ala Asn Lys	Pro Glu Ala Ser Leu	Glu	
223	228	233	238	
agg cag tgc gta aac	ctt gaa aat gaa aaa	gga aca aaa ccc cct	ctt	947
Arg Gln Cys Val Asn	Leu Glu Asn Glu Lys	Gly Thr Lys Pro Pro	Leu	
239	244	249	254	
caa gag gca ggc tcc	aag aaa ggt aga gaa	tca gtt cct act aaa	cct	995
Gln Glu Ala Gly Ser	Lys Lys Gly Arg Glu	Ser Val Pro Thr Lys	Pro	
255	260	265	270	
acc cca gga gag aga	cgt tat ata tgt gct	gaa tgt ggc aaa gcc	ttt	1043
Thr Pro Gly Glu Arg	Arg Tyr Ile Cys Ala	Glu Cys Gly Lys Ala	Phe	
271	276	281	286	
agt aat agc tca aat	ctc acc aaa cac agg	aga aca cac act ggg	gag	1091
Ser Asn Ser Ser Asn	Leu Thr Lys His Arg	Arg Thr His Thr Gly	Glu	
287	292	297	302	
aaa cct tac gtg tgc	acc aag tgt ggg aaa	gct ttc agc cac agc	tca	1139
Lys Pro Tyr Val Cys	Thr Lys Cys Gly Lys	Ala Phe Ser His Ser	Ser	
303	308	313	318	
aac ctc acc ctc cac	tac aga aca cac ttg	gtg gac cgg ccc tat	gac	1187
Asn Leu Thr Leu His	Tyr Arg Thr His Leu	Val Asp Arg Pro Tyr	Asp	
319	324	329	334	
tgt aag tgt gga aaa	gct ttt ggg cag agc	tca gac ctt ctt aaa	cat	1235
Cys Lys Cys Gly Lys	Ala Phe Gly Gln Ser	Ser Asp Leu Leu Lys	His	
335	340	345	350	
cag aga atg cac aca	gaa gag gcg cca tat	cag tgc aaa gat tgt	ggc	1283
Gln Arg Met His Thr	Glu Glu Ala Pro Tyr	Gln Cys Lys Asp Cys	Gly	
351	356	361	366	
aag gct ttc agc ggg	aaa ggc agc ctc att	cgt cac tat cgg atc	cac	1331
Lys Ala Phe Ser Gly	Lys Gly Ser Leu Ile	Arg His Tyr Arg Ile	His	
367	372	377	382	
act ggg gag aag cct	tat cag tgt aac gaa	tgt ggg aag agc ttc	agt	1379
Thr Gly Glu Lys Pro	Tyr Gln Cys Asn Glu	Cys Gly Lys Ser Phe	Ser	
383	388	393	398	
cag cat gcg ggc ctc	agc tcc cac cag aga	ctc cac acc gga gag	aag	1427
Gln His Ala Gly Leu	Ser Ser His Gln Arg	Leu His Thr Gly Glu	Lys	
399	404	409	414	
cca tat aag tgt aag	gag tgt ggg aaa gcc	ttc aac cac agc tcc	aac	1475
Pro Tyr Lys Cys Lys	Glu Cys Gly Lys Ala	Phe Asn His Ser Ser	Asn	
415	420	425	430	





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Ser Lys Ala Ala Ala Asp Leu Met Ala Tyr Cys Glu Ala His Ala Lys	
31 36 41 46	
gaa gac ccc ctc ctg acc cct gtt ccg gct tca gaa aac ccg ttt agg	493
Glu Asp Pro Leu Leu Thr Pro Val Pro Ala Ser Glu Asn Pro Phe Arg	
47 52 57 62	
gag aag aag ttt ttc tgt gcc atc ctt taa g tctttgagag gggcctgaag	544
Glu Lys Lys Phe Phe Cys Ala Ile Leu *	
63 68	
agcctccggg ctccctgggac attgatgtag agtttttagt gaagtgggca cctttctagt	604
ccacggcatt tgaagagagc gaggagaacc attctggaaa ctctaggcta tgcattgttta	664
aagatctggt cccctttatg agaatgcaag ccgatccaca tcctgactta agagatctga	724
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ctgctatccc ccagcccccc ccccccaaa atcctcatgt ttctgcttca tattttgaaa	844
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tggtacaac gacaaaaaat gccggttgtc tgtgttctct ttccactatt cctaacatgt	1204
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Met Ala Ser Trp Pro Ser	

gtc tac cac gta gtg agc ggg aag atg ctg atc ctt tac gac aaa gac	160
Val Tyr His Val Val Ser Gly Lys Met Leu Ile Leu Tyr Asp Lys Asp	
7 12 17 22	
ccc tgc tcc cct gtt tct gtg ccc tac ttg agt cct cta gta ctc cgt	208
Pro Cys Ser Pro Val Ser Val Pro Tyr Leu Ser Pro Leu Val Leu Arg	
23 28 33 38	
aaa gaa ctt gaa tct ttg cta gaa aat gaa ggt gat cag gtg att cat	256
Lys Glu Leu Glu Ser Leu Leu Glu Asn Glu Gly Asp Gln Val Ile His	
39 44 49 54	
aca tct tct ttc atc aat caa cat cca atc att ttc tgg acc ctc gtt	304
Thr Ser Ser Phe Ile Asn Gln His Pro Ile Ile Phe Trp Thr Leu Val	
55 60 65 70	
tgg tat ttc aga cgt ttg gac ctt cct agt aac ttg cca gga ctt atc	352
Trp Tyr Phe Arg Arg Leu Asp Leu Pro Ser Asn Leu Pro Gly Leu Ile	
71 76 81 86	
ctc aca tct gaa cat tgt aat gaa ggt gta cag ctt cct ctg tca tct	400
Leu Thr Ser Glu His Cys Asn Glu Gly Val Gln Leu Pro Leu Ser Ser	
87 92 97 102	
ctg tcc cag gat agc aaa ctt gtg tat att cag ctg tta tgg gat aat	448
Leu Ser Gln Asp Ser Lys Leu Val Tyr Ile Gln Leu Leu Trp Asp Asn	
103 108 113 118	
atc aac ctt cat cag gaa cca aga gaa cct ctg tat gtc tca tgg agg	496
Ile Asn Leu His Gln Glu Pro Arg Glu Pro Leu Tyr Val Ser Trp Arg	
119 124 129 134	
aat ttt aat tct gaa aag aaa tca tct ctc ctg tca gag gaa caa caa	544
Asn Phe Asn Ser Glu Lys Lys Ser Ser Leu Leu Ser Glu Glu Gln Gln	
135 140 145 150	
gaa aca agc act tta gta gaa acc atc agg cag agt att cag cac aat	592
Glu Thr Ser Thr Leu Val Glu Thr Ile Arg Gln Ser Ile Gln His Asn	
151 156 161 166	
aat gtt ctt aaa ccc atc aac cta ctt tca cag caa atg aag cca ggc	640
Asn Val Leu Lys Pro Ile Asn Leu Leu Ser Gln Gln Met Lys Pro Gly	
167 172 177 182	
atg aaa aga caa agg agt tta tac aga gaa atc ctc ttc tta tca tta	688
Met Lys Arg Gln Arg Ser Leu Tyr Arg Glu Ile Leu Phe Leu Ser Leu	
183 188 193 198	
gtg tct cta gga aga gag aat att gat att gag gca ttt gac aat gaa	736
Val Ser Leu Gly Arg Glu Asn Ile Asp Ile Glu Ala Phe Asp Asn Glu	
199 204 209 214	
tat gga att gca tac aat agt ctg tct tca gag att ctt gaa agg ttg	784
Tyr Gly Ile Ala Tyr Asn Ser Leu Ser Ser Glu Ile Leu Glu Arg Leu	
215 220 225 230	

cag aaa att gat gct cca cca agt gcc agt gtc gag tgg tgc agg aag	832
Gln Lys Ile Asp Ala Pro Pro Ser Ala Ser Val Glu Trp Cys Arg Lys	
231 236 241 246	
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Cys Phe Gly Ala Pro Leu Ile *	
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gttgcggtca tcttctccct gctgctcgtg gtgggtccgga cacagatgcc cactactct	240
gtcctggggc aggtgccaga cacggatatt tacagagatg tggcagagta ctgagaggcc	300
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gagttctaca gtgatgcgt gaagcagagg tgtggtgtgg atgtcgactt cctcatctcc	420
cagaagaaga aactgctcaa gaagcaggag cagctgaagc tgaagcaact gcagaaagag	480
gagaagcttc ggaaacaggc tgcctcccc aagggcgccct cagtttccat taatgtcaac	540
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ctgggtgccc tctcctttgt ggacactgtg tgcctcaaga gcctgaagaa /tattttcc	778
atg act tcc ggg aga ttg agg tgg agg tgt aca tgg cgg cct gcc aca	826
Met Thr Ser Gly Arg Leu Arg Trp Arg Cys Thr Trp Arg Pro Ala Thr	
1 5 10 15	

gcc ctg tgg tca gcc agc ttg agg ctg ggc act tct tcg atg cat cca	874
Ala Leu Trp Ser Ala Ser Leu Arg Leu Gly Thr Ser Ser Met His Pro	
17 22 27 32	
tca cca aga agc atc tct ttg cct ctg tcc atg atg ctg tca cct ttg	922
Ser Pro Arg Ser Ile Ser Leu Pro Leu Ser Met Met Leu Ser Pro Leu	
33 38 43 48	
ccc tcc aac acc cga ggc ctg tcc ccg aca gcc ctg ttt cgg tca cca	970
Pro Ser Asn Thr Arg Gly Leu Ser Pro Thr Ala Leu Phe Arg Ser Pro	
49 54 59 64	
gac tct gaa cat gct aca tcc tgc cca aga ctg cac ctc tgg agg tgc	1018
Asp Ser Glu His Ala Thr Ser Cys Pro Arg Leu His Leu Trp Arg Cys	
65 70 75 80	
agg gca ccc ttg aga agc ccc tca ccc cta ggc cgc ctc cag gtg cta	1066
Arg Ala Pro Leu Arg Ser Pro Ser Pro Leu Gly Arg Leu Gln Val Leu	
81 86 91 96	
ccc agg agt ccc ctc cat gta cac aca cac aac tca ggg aag gag gtc	1114
Pro Arg Ser Pro Leu His Val His Thr His Asn Ser Gly Lys Glu Val	
97 102 107 112	
ctg gga ctc caa gtt cag cgc tcc agg tct ggg aca ggg cct gca tgc	1162
Leu Gly Leu Gln Val Gln Arg Ser Arg Ser Gly Thr Gly Pro Ala Cys	
113 118 123 128	
agt cag gct ggc agt ggc gcg gta cag gga ggg aac tgg tgc ata ttt	1210
Ser Gln Ala Gly Ser Gly Ala Val Gln Gly Gly Asn Trp Cys Ile Phe	
129 134 139 144	
tag cctc aggaatanag ctaaataaat aaataaataa ataaataaat aaatagtatg	1267
*	
145	
attcttctat gaaatcaggt gaattttata atacgaaact caccatgaaa atatgacttt	1327
caaatttcaa aaatccatcc tgacacagtg gctcaagtct taggccagct actcgggggg	1387
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tcggaccaga tcggaaccac tgaccattgc cc atg gcg gcc cta ggc cct agc	233
Met Ala Ala Leu Gly Pro Ser	
1 5	
agc cag aat gtc act gaa tac gtc gtt cga gtt cct aag aat aca acc	281
Ser Gln Asn Val Thr Glu Tyr Val Val Arg Val Pro Lys Asn Thr Thr	
8 13 18 23	
aaa aaa tat aac atc atg gct ttt aat gca gcc gac aaa gtc aac ttt	329
Lys Lys Tyr Asn Ile Met Ala Phe Asn Ala Ala Asp Lys Val Asn Phe	
24 29 34 39	
gct acg tgg aat cag gct cgg ctg gag cgg gac ttg agc aac aag aaa	377
Ala Thr Trp Asn Gln Ala Arg Leu Glu Arg Asp Leu Ser Asn Lys Lys	
40 45 50 55	
atc tac caa gag gag gag atg ccc gaa tcg ggc gcg ggc agt gag ttc	425
Ile Tyr Gln Glu Glu Glu Met Pro Glu Ser Gly Ala Gly Ser Glu Phe	
56 61 66 71	
aac cgc aag ctt cgg gag gag gct cgg agg aag aag tac ggc atc gtc	473
Asn Arg Lys Leu Arg Glu Glu Ala Arg Arg Lys Lys Tyr Gly Ile Val	
72 77 82 87	
ctc aag gag ttc cgg ccc gag gac cag ccc tgg ctg ctc cgg gtc aac	521
Leu Lys Glu Phe Arg Pro Glu Asp Gln Pro Trp Leu Leu Arg Val Asn	
88 93 98 103	
ggc aaa tca ggc agg aag ttc aag ggc atc aag aag gga ggc gta aca	569
Gly Lys Ser Gly Arg Lys Phe Lys Gly Ile Lys Lys Gly Gly Val Thr	
104 109 114 119	
gag aac acg tcc tac tac atc ttc acc cag tgc ccc gac ggg gcc ttc	617
Glu Asn Thr Ser Tyr Tyr Ile Phe Thr Gln Cys Pro Asp Gly Ala Phe	
120 125 130 135	
gag gcc ttc ccc gtg cac aac tgg tac aat ttc aca ccg ctg gcc cgg	665
Glu Ala Phe Pro Val His Asn Trp Tyr Asn Phe Thr Pro Leu Ala Arg	
136 141 146 151	
cat cgc acg ctc act gcc gag gag gcc gag gag gag tgg gag agg agg	713
His Arg Thr Leu Thr Ala Glu Glu Ala Glu Glu Glu Trp Glu Arg Arg	
152 157 162 167	
aac aag gtg ctg aac cac ttc agc atc atg cag cag cgg cgg ctc aag	761
Asn Lys Val Leu Asn His Phe Ser Ile Met Gln Gln Arg Arg Leu Lys	
168 173 178 183	
gat cag gac cag gac gag gat gag gag gag aag gag aaa cgt ggc cgc	809
Asp Gln Asp Gln Asp Glu Asp Glu Glu Glu Lys Glu Lys Arg Gly Arg	
184 189 194 199	

agg aag gcg agc gag ctg cgc atc cac gac ctg gag gac gac ctg gag	857
Arg Lys Ala Ser Glu Leu Arg Ile His Asp Leu Glu Asp Asp Leu Glu	
200 205 210 215	
atg tcg tcc gat gcc agt gat gcc agt ggt gag gag ggg ggc aga gtc	905
Met Ser Ser Asp Ala Ser Asp Ala Ser Gly Glu Glu Gly Gly Arg Val	
216 221 226 231	
ccc aag gcc aag aag aag gcg ccg ctg gcc aag ggc ggc agg aaa aag	953
Pro Lys Ala Lys Lys Lys Ala Pro Leu Ala Lys Gly Gly Arg Lys Lys	
232 237 242 247	
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Lys Lys Lys Lys Gly Ser Asp Asp Glu Ala Phe Glu Asp Ser Asp Asp	
248 253 258 263	
ggg gac ttc gag ggc caa gag gtg gac tac atg tca gac ggc tcc agt	1049
Gly Asp Phe Glu Gly Gln Glu Val Asp Tyr Met Ser Asp Gly Ser Ser	
264 269 274 279	
agc tcc caa gaa gag cct gag agc aag gcc aag gcg ccg cag cag gag	1097
Ser Ser Gln Glu Glu Pro Glu Ser Lys Ala Lys Ala Pro Gln Gln Glu	
280 285 290 295	
gag ggg ccc aag ggt gtc gat gag cag agc gac agt agt gag gag agt	1145
Glu Gly Pro Lys Gly Val Asp Glu Gln Ser Asp Ser Ser Glu Glu Ser	
296 301 306 311	
gag gag gag aag ccg cct gag gag gac aag gag gag gag gag gag aag	1193
Glu Glu Glu Lys Pro Pro Glu Glu Asp Lys Glu Glu Glu Glu Glu Lys	
312 317 322 327	
aag gca ccc acc ccg cag gag aag aag cgc agg aaa gac agc agc gag	1241
Lys Ala Pro Thr Pro Gln Glu Lys Lys Arg Arg Lys Asp Ser Ser Glu	
328 333 338 343	
gag tcg gac agc tca gag gag agc gac att gac agc gag gcc tcc tca	1289
Glu Ser Asp Ser Ser Glu Glu Ser Asp Ile Asp Ser Glu Ala Ser Ser	
344 349 354 359	
gcc ctc ttc atg gcg aag aag aag acg cca ccc aag aga gag cgg aag	1337
Ala Leu Phe Met Ala Lys Lys Lys Thr Pro Pro Lys Arg Glu Arg Lys	
360 365 370 375	
ccg tcg gga ggg agc tca agg ggc aac agc cgc cca ggc acg ccc agc	1385
Pro Ser Gly Gly Ser Ser Arg Gly Asn Ser Arg Pro Gly Thr Pro Ser	
376 381 386 391	
gca gag ggt ggc agc acc tcc tcc acc ctg cgg gcg gct gcc agc aaa	1433
Ala Glu Gly Gly Ser Thr Ser Ser Thr Leu Arg Ala Ala Ala Ser Lys	
392 397 402 407	
ctc gag caa ggg aag cgg gtg agc gag atg cct gca gcc aag cgg ttg	1481
Leu Glu Gln Gly Lys Arg Val Ser Glu Met Pro Ala Ala Lys Arg Leu	
408 413 418 423	



gccgaggcct cctgcagtgt tctgcacagc aaaccgcacg ct	atg gct gac agc	114
	Met Ala Asp Ser	
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cg g gat ccc gcc agc gac cag atg cag cac tgg aag gag cag cg g gcc		162
Arg Asp Pro Ala Ser Asp Gln Met Gln His Trp Lys Glu Gln Arg Ala		
5 10 15 20		
gc g cag aaa gct gat gtc ctg acc act gga gct ggt aac cca gta gga		210
Ala Gln Lys Ala Asp Val Leu Thr Thr Gly Ala Gly Asn Pro Val Gly		
21 26 31 36		
gac aaa ctt aat gtt att aca gta ggg ccc cgt ggg ccc ctt ctt gtt		258
Asp Lys Leu Asn Val Ile Thr Val Gly Pro Arg Gly Pro Leu Leu Val		
37 42 47 52		
cag gat gtg gtt ttc act gat gaa atg gct cat ttt gac cga gag aga		306
Gln Asp Val Val Phe Thr Asp Glu Met Ala His Phe Asp Arg Glu Arg		
53 58 63 68		
att cct gag aga gtt gtg cat gct aaa gga gca ggg gcc ttt ggc tac		354
Ile Pro Glu Arg Val Val His Ala Lys Gly Ala Gly Ala Phe Gly Tyr		
69 74 79 84		
ttt gag gtc aca cat gac att acc aaa tac tcc aag gca aag gta ttt		402
Phe Glu Val Thr His Asp Ile Thr Lys Tyr Ser Lys Ala Lys Val Phe		
85 90 95 100		
gag cat att gga aag aag act ccc atc gca gtt cg g ttc tcc act gtt		450
Glu His Ile Gly Lys Lys Thr Pro Ile Ala Val Arg Phe Ser Thr Val		
101 106 111 116		
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Ala Gly Glu Ser Gly Ser Ala Asp Thr Val Arg Asp Pro Arg Gly Phe		
117 122 127 132		
gca gtg aaa ttt tac aca gaa gat ggt aac tgg gat ctc gtt gga aat		546
Ala Val Lys Phe Tyr Thr Glu Asp Gly Asn Trp Asp Leu Val Gly Asn		
133 138 143 148		
aac acc ccc att ttc ttc atc agg gat ccc ata ttg ttt cca tct ttt		594
Asn Thr Pro Ile Phe Phe Ile Arg Asp Pro Ile Leu Phe Pro Ser Phe		
149 154 159 164		
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Ile His Ser Gln Lys Arg Asn Pro Gln Thr His Leu Lys Asp Pro Asp		
165 170 175 180		
atg gtc tgg gac ttc tgg agc cta cgt cct gag tct ctg cat cag gtt		690
Met Val Trp Asp Phe Trp Ser Leu Arg Pro Glu Ser Leu His Gln Val		
181 186 191 196		
tct ttc ttg ttc agt gat cg g ggg att cca gat gga cat cgc cac atg		738
Ser Phe Leu Phe Ser Asp Arg Gly Ile Pro Asp Gly His Arg His Met		/
197 202 207 212		
aat gga tat gga tca cat act ttc aag ctg gtt aat gca aat ggg gag		786



Asn Gly Tyr Gly Ser His Thr Phe Lys Leu Val Asn Ala Asn Gly Glu	
213 218 223 228	
gca gtt tat tgc aaa ttc cat tat aag act gac cag ggc atc aaa aac	834
Ala Val Tyr Cys Lys Phe His Tyr Lys Thr Asp Gln Gly Ile Lys Asn	
229 234 239 244	
ctt tct gtt gaa gat gcg gcg aga ctt tcc cag gaa gat cct gac tat	882
Leu Ser Val Glu Asp Ala Ala Arg Leu Ser Gln Glu Asp Pro Asp Tyr	
245 250 255 260	
ggc atc cgg gat ctt ttt aac gcc att gcc aca gga aag tac ccc tcc	930
Gly Ile Arg Asp Leu Phe Asn Ala Ile Ala Thr Gly Lys Tyr Pro Ser	
261 266 271 276	
tgg act ttt tac atc cag gtc atg aca ttt aat cag gca gaa act ttt	978
Trp Thr Phe Tyr Ile Gln Val Met Thr Phe Asn Gln Ala Glu Thr Phe	
277 282 287 292	
cca ttt aat cca ttc gat ctc acc aag gtt tgg cct cac aag gac tac	1026
Pro Phe Asn Pro Phe Asp Leu Thr Lys Val Trp Pro His Lys Asp Tyr	
293 298 303 308	
cct ctc atc cca gtt ggt aaa ctg gtc tta aac cgg aat cca gtt aat	1074
Pro Leu Ile Pro Val Gly Lys Leu Val Leu Asn Arg Asn Pro Val Asn	
309 314 319 324	
tac ttt gct gag gtt gaa cag ata gcc ttc gac cca agc aac atg cca	1122
Tyr Phe Ala Glu Val Glu Gln Ile Ala Phe Asp Pro Ser Asn Met Pro	
325 330 335 340	
cct ggc att gag gcc agt cct gac aaa atg ctt cag ggc cgc ctt ttt	1170
Pro Gly Ile Glu Ala Ser Pro Asp Lys Met Leu Gln Gly Arg Leu Phe	
341 346 351 356	
gcc tat cct gac act cac cgc cat cgc ctg gga ccc aat tat ctt cat	1218
Ala Tyr Pro Asp Thr His Arg His Arg Leu Gly Pro Asn Tyr Leu His	
357 362 367 372	
ata cct gtg aac tgt ccc tac cgt gct cga gtg gcc aac tac cag cgt	1266
Ile Pro Val Asn Cys Pro Tyr Arg Ala Arg Val Ala Asn Tyr Gln Arg	
373 378 383 388	
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Asp Gly Pro Met Cys Met Gln Asp Asn Gln Gly Gly Ala Pro Asn Tyr	
389 394 399 404	
tac ccc aac agc ttt ggt gct ccg gaa caa cag cct tct gcc ctg gag	1362
Tyr Pro Asn Ser Phe Gly Ala Pro Glu Gln Gln Pro Ser Ala Leu Glu	
405 410 415 420	
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His Ser Ile Gln Tyr Ser Gly Glu Val Arg Arg Phe Asn Thr Ala Asn	
421 426 431 436	
gat gat aac gtt act cag gtg cgg gca ttc tat gtg aac gtg ctg aat	1458
Asp Asp Asn Val Thr Gln Val Arg Ala Phe Tyr Val Asn Val Leu Asn	

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gag gaa cag agg aaa cgt ctg tgt gag aac att gcc ggc cac ctg aag				1506
Glu Glu Gln Arg Lys Arg Leu Cys Glu Asn Ile Ala Gly His Leu Lys				
453	458	463	468	
gat gca caa att ttc atc cag aag aaa gcg gtc aag aac ttc act gag				1554
Asp Ala Gln Ile Phe Ile Gln Lys Lys Ala Val Lys Asn Phe Thr Glu				
469	474	479	484	
gtc cac cct gac tac ggg agc cac atc cag gct ctt ctg gac aag tac				1602
Val His Pro Asp Tyr Gly Ser His Ile Gln Ala Leu Leu Asp Lys Tyr				
485	490	495	500	
aat gct gag aag cct aag aat gcg att cac acc ttt gtg cag tcc gga				1650
Asn Ala Glu Lys Pro Lys Asn Ala Ile His Thr Phe Val Gln Ser Gly				
501	506	511	516	
tct cac ttg gcg gca agg gag aag gca aat ctg tga ggcc ggggccctgc				1700
Ser His Leu Ala Ala Arg Glu Lys Ala Asn Leu *				
517	522	527		
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tcctgtgcta gatgtgcaaa tgcaagctag tggcttcaaa atagagaatc ccacttttcta				1820
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Ser Gly Thr Pro Ala Pro Asn Lys Lys Arg Lys Ser Ser Lys Leu Ile	
4 9 14 19	
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Met Glu Leu Thr Gly Gly Gly Gln Glu Ser Ser Gly Leu Asn Leu Gly	
20 25 30 35	
aaa aag atc agt gtc cca agg gat gtg atg ttg gag gaa ctg tgc ctg	259
Lys Lys Ile Ser Val Pro Arg Asp Val Met Leu Glu Glu Leu Ser Leu	
36 41 46 51	
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Leu Thr Asn Arg Gly Ser Lys Met Phe Lys Leu Arg Gln Met Arg Val	
52 57 62 67	
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Glu Lys Phe Ile Tyr Glu Asn His Pro Asp Val Phe Ser Asp Ser Ser	
68 73 78 83	
atg gat cac ttc cag aag ttc ctt cca aca gtg ggg gga cag ctg ggc	403
Met Asp His Phe Gln Lys Phe Leu Pro Thr Val Gly Gly Gln Leu Gly	
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Thr Ala Gly Gln Gly Phe Ser Tyr Ser Lys Ser Asn Gly Arg Gly Gly	
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Gln His His Leu Gly Ser Gly Ser Gly Ala Gly Gly Thr Gly Gly Pro	
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Glu Thr Gly Ser Gly Asp Gln Ala Gly Gly Glu Gly Lys His Ile Thr	
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Val Phe Lys Thr Tyr Ile Ser Pro Trp Glu Arg Ala Met Gly Val Asp	
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Pro Gln Gln Lys Met Glu Leu Gly Ile Asp Leu Leu Ala Tyr Gly Ala	
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Lys Ala Glu Leu Pro Lys Tyr Lys Ser Phe Asn Arg Thr Ala Met Pro	
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Tyr Gly Gly Tyr Glu Lys Ala Ser Lys Arg Met Thr Phe Gln Met Pro	
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Lys Phe Asp Leu Gly Pro Leu Leu Ser Glu Pro Leu Val Leu Tyr Asn	
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Gln Asn Leu Ser Asn Arg Pro Ser Phe Asn Arg Thr Pro Ile Pro Trp	
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Thr Ala Gly Tyr Lys Thr Leu Leu Lys Cys Leu Ser Gly Lys Phe Cys	
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Thr	Phe	Met	Asn	Ile	Leu	Ala	Gly	Tyr	Arg	Glu	Ser	Gly	Met	Lys	Gly		
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cag	atc	ctg	gtt	aat	gga	agg	cca	cgg	gag	ctg	agg	acc	ttc	cgc	aag		240
Gln	Ile	Leu	Val	Asn	Gly	Arg	Pro	Arg	Glu	Leu	Arg	Thr	Phe	Arg	Lys		
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Met	Ser	Cys	Tyr	Ile	Met	Gln	Asp	Asp	Met	Leu	Leu	Pro	His	Leu	Thr		
81					86					91					96		
gtg	ttg	gaa	gcc	atg	atg	gtc	tct	gct	aac	ctg	aag	ctg	agt	gag	aag		336
Val	Leu	Glu	Ala	Met	Met	Val	Ser	Ala	Asn	Leu	Lys	Leu	Ser	Glu	Lys		
97					102					107					112		
cag	gag	gtg	aag	aag	gag	ctg	gtg	aca	gag	atc	ctg	acg	gca	ctg	ggc		384
Gln	Glu	Val	Lys	Lys	Glu	Leu	Val	Thr	Glu	Ile	Leu	Thr	Ala	Leu	Gly		
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ctg	atg	tcg	tgc	tcc	cac	acg	agg	aca	gcc	ctg	ctc	tct	ggc	ggg	cag		432
Leu	Met	Ser	Cys	Ser	His	Thr	Arg	Thr	Ala	Leu	Leu	Ser	Gly	Gly	Gln		
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Met	Phe	Phe	Asp	Glu	Pro	Thr	Ser	Gly	Leu	Asp	Ser	Ala	Ser	Cys	Phe		
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Gln	Val	Val	Ser	Leu	Met	Lys	Ser	Leu	Ala	Gln	Gly	Gly	Arg	Thr	Ile		
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Ile	Cys	Thr	Ile	His	Gln	Pro	Ser	Ala	Lys	Leu	Phe	Glu	Met	Phe	Asp		
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Lys	Cys	Ile	Phe	Lys	Gly	Val	Val	Thr	Asn	Leu	Ile	Pro	Tyr	Leu	Lys		
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Gly	Leu	Gly	Leu	His	Cys	Pro	Thr	Tyr	His	Asn	Pro	Ala	Asp	Phe	Ile		
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Ile	Glu	Val	Ala	Ser	Gly	Glu	Tyr	Gly	Asp	Leu	Asn	Pro	Met	Leu	Phe		
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Arg	Ala	Val	Gln	Asn	Gly	Leu	Cys	Ala	Met	Ala	Glu	Lys	Lys	Ser	Ser		

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Pro Glu Lys Asn Glu Val Pro Ala Pro Cys Pro Pro Cys Pro Pro Glu				
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Val Asp Pro Ile Glu Ser His Thr Phe Ala Thr Ser Thr Leu Thr Gln				
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ttc tgc atc ctc ttc aag agg acc ttc ctg tcc atc ctc agg gac acg				960
Phe Cys Ile Leu Phe Lys Arg Thr Phe Leu Ser Ile Leu Arg Asp Thr				
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Val Val Cys Pro Val Val Tyr Cys Ser Ile Val Tyr Trp Met Thr Gly				
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cag ccc gct gag acc agc cgc ttc ctg ctc ttc tca gcc ctg gcc acc				1056
Gln Pro Ala Glu Thr Ser Arg Phe Leu Leu Phe Ser Ala Leu Ala Thr				
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gcc acc gcc ttg gtg gcc caa tct ttg ggg ctg ctg atc gga gct gct				1104
Ala Thr Ala Leu Val Ala Gln Ser Leu Gly Leu Leu Ile Gly Ala Ala				
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tcc aac tcc cta cag gtg gcc act ttt gtg ggc cca gtt acc gcc atc				1152
Ser Asn Ser Leu Gln Val Ala Thr Phe Val Gly Pro Val Thr Ala Ile				
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cct gtc ctc ttg ttc tcc ggc ttc ttt gtc agc ttc aag acc atc ccc				1200
Pro Val Leu Leu Phe Ser Gly Phe Phe Val Ser Phe Lys Thr Ile Pro				
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Thr Tyr Leu Gln Trp Ser Ser Tyr Leu Ser Tyr Val Arg Tyr Gly Phe				
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Glu Gly Val Ile Leu Thr Ile Tyr Gly Met Glu Arg Gly Asp Leu Thr				
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Cys Leu Glu Glu Arg Cys Pro Phe Arg Glu Pro Gln Ser Ile Leu Arg				
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Ala Leu Asp Val Glu Asp Ala Lys Leu Tyr Met Asp Phe Leu Val Leu				
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Tyr Arg Glu Cys Gly Phe Cys Ser Leu Asp Ser Ser Ala Asp Leu Ile				
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Phe Gln Ser Arg Asn Val Ile Pro Asp Ile Pro Asp His Phe Leu Cys	
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Tyr Glu Ala Val Gly Lys Asp Asn Pro Val Val Leu Cys Gly Trp Lys	
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Tyr Lys Cys Pro Leu Cys Asp Met Thr Cys Pro Leu Pro Ser Ser Leu	
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Asp Cys Cys Asp Tyr Ser Cys Lys Asn Leu Ile Asp Leu Gln Lys His	
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Cys Thr Phe Ser Ala Arg Ser Leu Cys Ser Ile Lys Ser His Tyr Arg	
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Val Leu Ala Lys Phe Ala Leu Ile Phe Pro Asp Leu Val Glu Gly Leu	
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1 5 10

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Gln Leu Leu Glu Leu Arg Thr Asn Asn Tyr Gln Leu Ser Asp Glu Leu
16 21 26 31

cgc aag aat ggt gtt gaa ctc acc agt ctt cga cag aag gtc gcc tac 203
Arg Lys Asn Gly Val Glu Leu Thr Ser Leu Arg Gln Lys Val Ala Tyr
32 37 42 47

ttg gat aag gag ttc agc aaa gct cag aag gca ctg agc aag agc aag 251
Leu Asp Lys Glu Phe Ser Lys Ala Gln Lys Ala Leu Ser Lys Ser Lys
48 53 58 63

aaa gct cag gaa gtc gag gta ttg ctg agt gaa aat gag atg ctg cag 299
Lys Ala Gln Glu Val Glu Val Leu Leu Ser Glu Asn Glu Met Leu Gln
64 69 74 79

gca aag ctg cac agc cag gag gag gac ttc cgt ttg cag aac agc aca 347

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Leu	Met	Ala	Glu	Phe	Ser	Lys	Val	Leu	Val	Pro	Gly	Ile	Val	Lys	Gly	
96					101					106					111	
gaa	atg	agg	ggt	agg	ggt	cat	ctg	ggc	tga	a	acctaacagc	ggcagagagt				446
Glu	Met	Arg	Gly	Arg	Gly	His	Leu	Gly	*							
112					117											
gattggacag	ggtctggccc	tggagcactg	tccgtggtgc	tgaacaggt	cctggattgc											506
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cagtagctgc	tggaataatt	cctggcggct	aaaggtggcc	attgcagacc	cccacgg											777
atg	gat	ggc	cag	atg	gat	aga	tct	ggc	agg	aaa	gaa	gcc	gtg	gtc	ctg	825
Met	Asp	Gly	Gln	Met	Asp	Arg	Ser	Gly	Arg	Lys	Glu	Ala	Val	Val	Leu	

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Gly Thr Glu Asp Ala Leu Pro Pro Pro Leu Pro Pro Gly Ser Leu				
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Tyr His Phe Phe Gln Leu His Met Val Trp Val Val Leu Leu Ser Leu				
33	38	43	48	
ctg tgc tac ctc gtg ctg ttc ctc tgc cga cat tcc tcc cat cga ggc				969
Leu Cys Tyr Leu Val Leu Phe Leu Cys Arg His Ser Ser His Arg Gly				
49	54	59	64	
gtc ttc cta tcc gtc acc atc ctc atc tac cta ctc atg ggt gag atg				1017
Val Phe Leu Ser Val Thr Ile Leu Ile Tyr Leu Leu Met Gly Glu Met				
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cac atg gta gac acc gtg aca tgg cac aag atg cga ggc gca cag atg				1065
His Met Val Asp Thr Val Thr Trp His Lys Met Arg Gly Ala Gln Met				
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att gtg gcc atg aag gca gtg tct ctg ggc ttc gac ctg gac cgg ggc				1113
Ile Val Ala Met Lys Ala Val Ser Leu Gly Phe Asp Leu Asp Arg Gly				
97	102	107	112	
gag gtg ggt acg gtg ccc tgc cca gtg gag ttc atg ggc tac ctc tac				1161
Glu Val Gly Thr Val Pro Ser Pro Val Glu Phe Met Gly Tyr Leu Tyr				
113	118	123	128	
ttc gtg ggc acc atc gtc ttc ggg ccc tgg ata tcc ttc cac agc tac				1209
Phe Val Gly Thr Ile Val Phe Gly Pro Trp Ile Ser Phe His Ser Tyr				
129	134	139	144	
cta caa gct gtc caa ggc cgc cca ctg agc tgc cgg tgg ctg cag aag				1257
Leu Gln Ala Val Gln Gly Arg Pro Leu Ser Cys Arg Trp Leu Gln Lys				
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gtg gcc cgg agc ctg gca ctg gcc ctg ctg tgc ctt gtg ctg tcc act				1305
Val Ala Arg Ser Leu Ala Leu Ala Leu Leu Cys Leu Val Leu Ser Thr				
161	166	171	176	
tgc gtg ggc ccc tac ctc ttc ccg tac ttc atc ccc ctc aac ggt gac				1353
Cys Val Gly Pro Tyr Leu Phe Pro Tyr Phe Ile Pro Leu Asn Gly Asp				
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cgc ctc ctt cgc aac aag aaa cgc aaa gcc agg ggc acc atg gta agg				1401
Arg Leu Leu Arg Asn Lys Lys Arg Lys Ala Arg Gly Thr Met Val Arg				
193	198	203	208	
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Trp Leu Arg Ala Tyr Glu Ser Ala Val Ser Phe His Phe Ser Asn Tyr				
209	214	219	224	
ttt gtg ggc ttt ctt tcc gag gcc acg gcc acg ttg gcg ggg gct ggc				1497
Phe Val Gly Phe Leu Ser Glu Ala Thr Ala Thr Leu Ala Gly Ala Gly				
225	230	235	240	

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Phe Thr Glu Glu Lys Asp His Leu Glu Trp Asp Leu Thr Val Ser Lys	
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Pro Leu Asn Val Glu Leu Pro Arg Ser Met Val Glu Val Val Thr Ser	
257 262 267 272	
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Trp Asn Leu Pro Met Ser Tyr Trp Leu Asn Asn Tyr Val Phe Lys Asn	
273 278 283 288	
gct ctc cgc ctg ggg acc ttc tcg gct gtg ctg gtc acc tat gca gcc	1689
Ala Leu Arg Leu Gly Thr Phe Ser Ala Val Leu Val Thr Tyr Ala Ala	
289 294 299 304	
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Ser Ala Leu Leu His Gly Phe Ser Phe His Leu Ala Ala Val Leu Leu	
305 310 315 320	
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Ser Leu Ala Phe Ile Thr Tyr Val Glu His Val Leu Arg Lys Arg Leu	
321 326 331 336	
gct cgg atc ctc agt gcc tgt gtc ttg tca aag cgg tgc ccg cca gac	1833
Ala Arg Ile Leu Ser Ala Cys Val Leu Ser Lys Arg Cys Pro Pro Asp	
337 342 347 352	
tgt tcg cac cag cat cgc ttg ggc ctg ggg gtg cga gcc tta aac ttg	1881
Cys Ser His Gln His Arg Leu Gly Leu Gly Val Arg Ala Leu Asn Leu	
353 358 363 368	
ctc ttt gga gct ctg gcc atc ttc cac ctg gcc tac ctg ggc tcc ctg	1929
Leu Phe Gly Ala Leu Ala Ile Phe His Leu Ala Tyr Leu Gly Ser Leu	
369 374 379 384	
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Phe Asp Val Asp Val Asp Asp Thr Thr Glu Glu Gln Gly Tyr Gly Met	
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Ala Tyr Thr Val His Lys Trp Ser Glu Leu Ser Trp Ala Ser His Trp	
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gtc act ttt gga tgc tgg atc ttc tac cgt ctc ata ggc tga ggggttac	2074
Val Thr Phe Gly Cys Trp Ile Phe Tyr Arg Leu Ile Gly *	
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cta agt ttg gat gat ttt cgg aac aca cag aaa agg gga gaa tca ttt      205
Leu Ser Leu Asp Asp Phe Arg Asn Thr Gln Lys Arg Gly Glu Ser Phe
  30             35             40             45

gga atc agc aga ata ggt agc aaa att aaa gga gta ttc aaa agt acc      253
Gly Ile Ser Arg Ile Gly Ser Lys Ile Lys Gly Val Phe Lys Ser Thr
  46             51             56             61

aca atg gag gga gct atg ttg cct aat tat ggt gta gct gaa ggt gaa      301
Thr Met Glu Gly Ala Met Leu Pro Asn Tyr Gly Val Ala Glu Gly Glu
  62             67             72             77

gat gat ttt att gaa gaa ggt att gtt gta atg gaa gat gat tct cca      349
Asp Asp Phe Ile Glu Glu Gly Ile Val Val Met Glu Asp Asp Ser Pro
  78             83             88             93

gtg gag gct gtg agc aca cct aat act ccc cga aac ctt gct gca tgg      397
Val Glu Ala Val Ser Thr Pro Asn Thr Pro Arg Asn Leu Ala Ala Trp
  94             99             104             109

aaa att agc att cca tat gta gac ttt ttt gag gat ccc tcc tct gaa      445
Lys Ile Ser Ile Pro Tyr Val Asp Phe Phe Glu Asp Pro Ser Ser Glu
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Arg Lys Glu Lys Lys Glu Arg Ile Pro Val Phe Cys Ile Asp Val Glu
  126            131            136            141

aga aat gat aga aga gca gtt gga cac gag cct gaa cat tgg tct gtc      541
Arg Asn Asp Arg Arg Ala Val Gly His Glu Pro Glu His Trp Ser Val
  142            147            152            157

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Tyr Arg Arg Tyr Leu Glu Phe Tyr Val Leu Glu Ser Lys Leu Thr Glu

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Gly Pro Lys Asn Tyr Glu Phe Leu Lys Ser Lys Arg Glu Glu Phe Gln		200	205	
190	195			
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Glu Tyr Leu Gln Lys Leu Leu Gln His Pro Glu Leu Ser Asn Ser Gln		216	221	
206	211			
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Leu Leu Ala Asp Phe Leu Ser Pro Asn Gly Gly Glu Thr Gln Phe Leu		232	237	
222	227			
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Asp Lys Ile Leu Pro Asp Val Asn Leu Gly Lys Ile Ile Lys Ser Val		248	253	
238	243			
cct gga aaa cta atg aaa gag aaa ggt cag cat ttg gaa cct ttt atc				877
Pro Gly Lys Leu Met Lys Glu Lys Gly Gln His Leu Glu Pro Phe Ile		264	269	
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302	307			
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318	323			
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334	339			
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350	355			
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Thr Leu Glu Met Tyr Thr Asp Tyr Tyr Leu Gln Cys Lys Leu Glu Gln		376	381	
366	371			
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Leu Phe Gln Glu His Arg Leu Val Ser Leu Ile Thr Leu Leu Arg Asp		392	397	
382	387			

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14 19 24 29	
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Leu Ser Leu Asp Asp Phe Arg Asn Thr Gln Lys Arg Gly Glu Ser Phe	
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Gly Ile Ser Arg Ile Gly Ser Lys Ile Lys Gly Val Phe Lys Ser Thr	
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Thr Met Glu Gly Ala Met Leu Pro Asn Tyr Gly Val Ala Glu Gly Glu	
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Asp Asp Phe Ile Glu Glu Gly Ile Val Val Met Glu Asp Asp Ser Pro	
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Val Glu Ala Val Ser Thr Pro Asn Thr Pro Arg Asn Leu Ala Ala Trp	
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Lys Ile Ser Ile Pro Tyr Val Asp Phe Phe Glu Asp Pro Ser Ser Glu	
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Arg Lys Glu Lys Lys Glu Arg Ile Pro Val Phe Cys Ile Asp Val Glu	
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Arg Asn Asp Arg Arg Ala Val Gly His Glu Pro Glu His Trp Ser Val	
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Tyr Arg Arg Tyr Leu Glu Phe Tyr Val Leu Glu Ser Lys Leu Thr Glu	
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Phe His Gly Ala Phe Pro Asp Ala Gln Leu Pro Ser Lys Arg Ile Ile	
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Gly Pro Lys Asn Tyr Glu Phe Leu Lys Ser Lys Arg Glu Glu Phe Gln	
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Glu Tyr Leu Gln Lys Leu Leu Gln His Pro Glu Leu Ser Asn Ser Gln	
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222 227 232 237	
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Asp Lys Ile Leu Pro Asp Val Asn Leu Gly Lys Ile Ile Lys Ser Val	
238 243 248 253	
cct gga aaa cta atg aaa gag aaa ggt cag cat ttg gaa cct ttt atc	877
Pro Gly Lys Leu Met Lys Glu Lys Gly Gln His Leu Glu Pro Phe Ile	
254 259 264 269	

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Arg Lys Gln Asn Gln Asn Tyr Phe Met Glu Val Met Thr Val Glu Gly	
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334 339 344 349	
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382 387 392 397	
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Gln Pro Val Leu Asn Lys Gln Leu Thr Tyr Val Leu Leu Asp Ile Val	
398 403 408 413	
ata cag gaa ctg ttt cca gag ctc aat aag gta caa aag gaa gtt acc	1357
Ile Gln Glu Leu Phe Pro Glu Leu Asn Lys Val Gln Lys Glu Val Thr	
414 419 424 429	
tct gtg aca tct tgg atg taa ac acttggattt ggtatagaat aacccattga	1410
Ser Val Thr Ser Trp Met *	
430 435	
aatttctgct gtgcgaggggt ggtagaaaatt tacttttttg ggtatattct tatatatatt	1470
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<400> 924

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				Met Ile Asp Ala Asn Leu		
				1		
aaa ttg ctg cag gaa gct gag caa cgt ctc aaa gcc att gtg gca gag						161
Lys Leu Leu Gln Glu Ala Glu Gln Arg Leu Lys Ala Ile Val Ala Glu						
7	12		17	22		
aag ttt gcc att gcc acc aag gaa ggt gat ttg ccc cag gtg gag cgc						209
Lys Phe Ala Ile Ala Thr Lys Glu Gly Asp Leu Pro Gln Val Glu Arg						
23	28		33	38		
ttc ttc aag atc ttc cca ctg ctg ggt ttg cat gag gag gga tta aga						257
Phe Phe Lys Ile Phe Pro Leu Leu Gly Leu His Glu Glu Gly Leu Arg						
39	44		49	54		
aag ttc tcg gag tac ctt tgc aag cag gtg gcc agt aaa gct gag gag						305
Lys Phe Ser Glu Tyr Leu Cys Lys Gln Val Ala Ser Lys Ala Glu Glu						
55	60		65	70		
aat ctg ctc atg gtg ctg ggg aca gac atg agt gat cgg aga gct gca						353
Asn Leu Leu Met Val Leu Gly Thr Asp Met Ser Asp Arg Arg Ala Ala						
71	76		81	86		
gtc atc ttt gca gat aca ctt act ctt ctg ttt gaa ggg att gcc cgc						401
Val Ile Phe Ala Asp Thr Leu Thr Leu Leu Phe Glu Gly Ile Ala Arg						
87	92		97	102		
att gtg gag acc cac cag cca ata gtg gag acc tat tat ggg cca ggg						449
Ile Val Glu Thr His Gln Pro Ile Val Glu Thr Tyr Tyr Gly Pro Gly						
103	108		113	118		
aga ctc tat acc ctg atc aaa tat ctg cag gtg gaa tgt gac aga cag						497
Arg Leu Tyr Thr Leu Ile Lys Tyr Leu Gln Val Glu Cys Asp Arg Gln						
119	124		129	134		
gtg gag aag gtg gta gac aag ttc atc aag caa agg gac tac cac cag						545
Val Glu Lys Val Val Asp Lys Phe Ile Lys Gln Arg Asp Tyr His Gln						
135	140		145	150		
cag ttc cgg cat gtt cag aac aac ctg atg aga aat tct aca aca gaa						593
Gln Phe Arg His Val Gln Asn Asn Leu Met Arg Asn Ser Thr Thr Glu						
151	156		161	166		
aaa atc gaa cca aga gaa ctg gac ccc atc ctg act gag gtc acc ctg						641
Lys Ile Glu Pro Arg Glu Leu Asp Pro Ile Leu Thr Glu Val Thr Leu						
167	172		177	182		
atg aat gcc cgc agt gag cta tac tta cgc ttc ctc aag aag agg att						689

Met Asn Ala Arg Ser Glu Leu Tyr Leu Arg Phe Leu Lys Lys Arg Ile	
183 188 193 198	
agc tct gat ttt gag gtg gga gac tcc atg gcc tca gag gaa gta aag	737
Ser Ser Asp Phe Glu Val Gly Asp Ser Met Ala Ser Glu Glu Val Lys	
199 204 209 214	
caa gag cac cag aag tgt ctg gac aaa ctc ctc aat aac tgc ctt ttg	785
Gln Glu His Gln Lys Cys Leu Asp Lys Leu Leu Asn Asn Cys Leu Leu	
215 220 225 230	
agc tgt acc atg cag gag cta att ggc tta tat gtt acc atg gag gag	833
Ser Cys Thr Met Gln Glu Leu Ile Gly Leu Tyr Val Thr Met Glu Glu	
231 236 241 246	
tac ttc atg agg gag act gtc aat aag gct gtg gct ctg gac acc tat	881
Tyr Phe Met Arg Glu Thr Val Asn Lys Ala Val Ala Leu Asp Thr Tyr	
247 252 257 262	
gag aag ggc cag ctg aca tcc agc atg gtg gat gat gtc ttc tac att	929
Glu Lys Gly Gln Leu Thr Ser Ser Met Val Asp Asp Val Phe Tyr Ile	
263 268 273 278	
gtt aag aag tgc att ggg cgg gct ctg tcc agc tcc agc att gac tgt	977
Val Lys Lys Cys Ile Gly Arg Ala Leu Ser Ser Ser Ser Ile Asp Cys	
279 284 289 294	
ctc tgt gcc atg atc aac ctc gcc acc aca gag ctg gag tct gac ttc	1025
Leu Cys Ala Met Ile Asn Leu Ala Thr Thr Glu Leu Glu Ser Asp Phe	
295 300 305 310	
agg gat gtt ctg tgt aat aag ctg cgg atg ggc ttt cct gcc acc acc	1073
Arg Asp Val Leu Cys Asn Lys Leu Arg Met Gly Phe Pro Ala Thr Thr	
311 316 321 326	
ttc cag gac atc cag cgc ggg gtg aca agt gcc gtg aac atc atg cac	1121
Phe Gln Asp Ile Gln Arg Gly Val Thr Ser Ala Val Asn Ile Met His	
327 332 337 342	
agc agc ctc cag caa ggc aaa ttt gac aca aaa ggc atc gag agt act	1169
Ser Ser Leu Gln Gln Gly Lys Phe Asp Thr Lys Gly Ile Glu Ser Thr	
343 348 353 358	
gac gag gcg aag atg tcc ttc ctg gtg act ctg aac aac gtg gaa gtc	1217
Asp Glu Ala Lys Met Ser Phe Leu Val Thr Leu Asn Asn Val Glu Val	
359 364 369 374	
tgc agt gaa aac atc tcc act ctg aag aag aca ctg gag agt gac tgc	1265
Cys Ser Glu Asn Ile Ser Thr Leu Lys Lys Thr Leu Glu Ser Asp Cys	
375 380 385 390	
acc aag ctc ttc agc cag ggc att gga ggg gag cag gcc cag gcc aag	1313
Thr Lys Leu Phe Ser Gln Gly Ile Gly Gly Glu Gln Ala Gln Ala Lys	
391 396 401 406	
ttt gac agc tgc ctt tct gac ttg gcc gcc gtg tcc aac aaa ttc cga	1361
Phe Asp Ser Cys Leu Ser Asp Leu Ala Ala Val Ser Asn Lys Phe Arg	

407	412	417	422	
gac ctc ttg cag gaa ggg ctg acg gag ctc aac agc aca gcc atc aag				1409
Asp Leu Leu Gln Glu Gly Leu Thr Glu Leu Asn Ser Thr Ala Ile Lys				
423	428	433	438	
cca cag gtg cag cct tgg atc aac agc ttt ttc tcc gtc tcc cac aac				1457
Pro Gln Val Gln Pro Trp Ile Asn Ser Phe Phe Ser Val Ser His Asn				
439	444	449	454	
atc gag gag gaa gaa ttc aat gac tat gag gcc aac gac cct tgg gta				1505
Ile Glu Glu Glu Glu Phe Asn Asp Tyr Glu Ala Asn Asp Pro Trp Val				
455	460	465	470	
caa cag ttc atc ctt aac ctg gag cag caa atg gca gag ttc aag gcc				1553
Gln Gln Phe Ile Leu Asn Leu Glu Gln Gln Met Ala Glu Phe Lys Ala				
471	476	481	486	
agc ctg tcc ccg gtc atc tac gac agc cta acc ggc ctc atg act agc				1601
Ser Leu Ser Pro Val Ile Tyr Asp Ser Leu Thr Gly Leu Met Thr Ser				
487	492	497	502	
ctt gtt gcc gtc gag ttg gag aaa gtg gtg ctg aaa tcc acc ttt aac				1649
Leu Val Ala Val Glu Leu Glu Lys Val Val Leu Lys Ser Thr Phe Asn				
503	508	513	518	
cgg ctg ggt ggt ctg cag ttt gac aag gag ctg agg tcg ctc att gcc				1697
Arg Leu Gly Gly Leu Gln Phe Asp Lys Glu Leu Arg Ser Leu Ile Ala				
519	524	529	534	
tac ctt acc acg gtg acc acc tgg acc atc cga gac aag ttt gcc cgg				1745
Tyr Leu Thr Thr Val Thr Thr Trp Thr Ile Arg Asp Lys Phe Ala Arg				
535	540	545	550	
ctc tcc cag atg gcc acc atc ctc aat ctg gag cgg gtg acc gag atc				1793
Leu Ser Gln Met Ala Thr Ile Leu Asn Leu Glu Arg Val Thr Glu Ile				
551	556	561	566	
ctc gat tac tgg gga ccc aat tcc ggc cca ttg acg tgg cgc ctc acc				1841
Leu Asp Tyr Trp Gly Pro Asn Ser Gly Pro Leu Thr Trp Arg Leu Thr				
567	572	577	582	
cct gct gaa gtg cgc cag gtg ctg gcc ctg cgg ata gac ttc cgc agt				1889
Pro Ala Glu Val Arg Gln Val Leu Ala Leu Arg Ile Asp Phe Arg Ser				
583	588	593	598	
gaa gat atc aag agg ctg cgc ctg tag ctgcc tggatgagca cacctggctc				1941
Glu Asp Ile Lys Arg Leu Arg Leu *				
599	604			
atcacacttg caggcctgtt ccctaagggg cccagccaa ggagctgagc gaggctgtct				2001
ggcttggggg agatctgaca gccagacct ttctacggct ggcagcagag aaacaaagtc				2061
tggacccact ccatgctctg ccctcagacc tggccagggtg atgctctggg ggcagcatct				2121
ccccaccgag agaagcgggc tcctaattgag gtgggaaagc cacggcaggc agcgagcagc				2181

ccaggccagc tttctgcatg gatggtcagt ctcttgccct caaacactac agcaaacaag 2241  
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aaaaa 2366

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<220>  
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ctactgcccc tgctgctgtc gtaggcgagg acggctgtta gtgctgctgc tgttggttcg 180  
tcgccggcggc gaaggaggag gaggaagagg gcgagggcagc aagagaagaa ggaggcaggg 240  
gcggcggcag cggcggcgcc ccgagccggc ggaggcgagg ggggggaag atg gcg 295  
Met Ala  
1  
gac gtg ctt agc gtc ctg cga cag tac aac atc cag aag aag gag att 343  
Asp Val Leu Ser Val Leu Arg Gln Tyr Asn Ile Gln Lys Lys Glu Ile  
3 8 13 18  
gtg gtg aag gga gac gaa gtg atc ttc ggg gag ttc tcc tgg ccc aag 391  
Val Val Lys Gly Asp Glu Val Ile Phe Gly Glu Phe Ser Trp Pro Lys  
19 24 29 34  
aat gtg aag acc aac tat gtt gtt tgg ggg act gga aag gaa ggc caa 439  
Asn Val Lys Thr Asn Tyr Val Val Trp Gly Thr Gly Lys Glu Gly Gln  
35 40 45 50  
ccc aga gag tac tac aca ttg gat tcc att tta ttt cta ctt aat aac 487  
Pro Arg Glu Tyr Tyr Thr Leu Asp Ser Ile Leu Phe Leu Leu Asn Asn  
51 56 61 66  
gtg cac ctt tct cat cct gtt tat gtc cga cgt gca gct act gaa aat 535  
Val His Leu Ser His Pro Val Tyr Val Arg Arg Ala Ala Thr Glu Asn  
67 72 77 82  
att cct gtg gtt aga aga cct gat cga aaa gat cta ctt gga tat ctc 583  
Ile Pro Val Val Arg Arg Pro Asp Arg Lys Asp Leu Leu Gly Tyr Leu  
83 88 93 98



aat ggt gaa gcg tca aca tcg gca agt ata gac aga agc gct ccc tta	631
Asn Gly Glu Ala Ser Thr Ser Ala Ser Ile Asp Arg Ser Ala Pro Leu	
99 104 109 114	
gaa ata ggt ctt cag cga tct act caa gtc aaa cga gct gca gat gaa	679
Glu Ile Gly Leu Gln Arg Ser Thr Gln Val Lys Arg Ala Ala Asp Glu	
115 120 125 130	
gtt tta gca gaa gca aag aaa cca cga att gag gat gaa gag tgt gtg	727
Val Leu Ala Glu Ala Lys Lys Pro Arg Ile Glu Asp Glu Glu Cys Val	
131 136 141 146	
cgc ctt gat aaa gag aga ttg gct gcc cgt ttg gag ggt cac aaa gaa	775
Arg Leu Asp Lys Glu Arg Leu Ala Ala Arg Leu Glu Gly His Lys Glu	
147 152 157 162	
ggg att gta cag act gaa cag att agg tct ttg tct gaa gct atg tca	823
Gly Ile Val Gln Thr Glu Gln Ile Arg Ser Leu Ser Glu Ala Met Ser	
163 168 173 178	
gtg gaa aaa att gct gca atc aaa gcc aaa att atg gct aag aaa aga	871
Val Glu Lys Ile Ala Ala Ile Lys Ala Lys Ile Met Ala Lys Lys Arg	
179 184 189 194	
tct act atc aag act gat cta gat gat gac ata act gcc ctt aaa cag	919
Ser Thr Ile Lys Thr Asp Leu Asp Asp Asp Ile Thr Ala Leu Lys Gln	
195 200 205 210	
agg agt ttt gtg gat gct gag gta gat gtg acc cga gat att gtc agc	967
Arg Ser Phe Val Asp Ala Glu Val Asp Val Thr Arg Asp Ile Val Ser	
211 216 221 226	
aga gag aga gta tgg agg aca cga aca act atc tta caa agc aca gga	1015
Arg Glu Arg Val Trp Arg Thr Arg Thr Thr Ile Leu Gln Ser Thr Gly	
227 232 237 242	
aag aat ttt tcc aag aac att ttt gca att ctt caa tct gta aaa gcc	1063
Lys Asn Phe Ser Lys Asn Ile Phe Ala Ile Leu Gln Ser Val Lys Ala	
243 248 253 258	
aga gaa gaa ggg cgt gca cct gaa cag cga cct gcc cca aat gca gca	1111
Arg Glu Glu Gly Arg Ala Pro Glu Gln Arg Pro Ala Pro Asn Ala Ala	
259 264 269 274	
cct gtg gat ccc act ttg cgc acc aaa cag cct atc cca gct gcc tat	1159
Pro Val Asp Pro Thr Leu Arg Thr Lys Gln Pro Ile Pro Ala Ala Tyr	
275 280 285 290	
aac aga tac gat cag gaa aga ttc aaa gga aaa gaa gaa acg gaa ggc	1207
Asn Arg Tyr Asp Gln Glu Arg Phe Lys Gly Lys Glu Glu Thr Glu Gly	
291 296 301 306	
ttc aaa att gac act atg gga acc tac cat ggt atg aca ctg aaa tct	1255
Phe Lys Ile Asp Thr Met Gly Thr Tyr His Gly Met Thr Leu Lys Ser	
307 312 317 322	

gta acg gag ggt gca tct gcc cgg aag act cag act cct gca gcc cag	1303
Val Thr Glu Gly Ala Ser Ala Arg Lys Thr Gln Thr Pro Ala Ala Gln	
323 328 333 338	
cca gta cca aga cca gtt tct caa gca aga cct ccc cca aat cag aag	1351
Pro Val Pro Arg Pro Val Ser Gln Ala Arg Pro Pro Pro Asn Gln Lys	
339 344 349 354	
aaa gga tct cga aca ccc att atc ata att cct gca gct acc acc tct	1399
Lys Gly Ser Arg Thr Pro Ile Ile Ile Ile Pro Ala Ala Thr Thr Ser	
355 360 365 370	
tta ata acc atg ctt aat gca aaa gac ctt cta cag gac ctg aaa ttt	1447
Leu Ile Thr Met Leu Asn Ala Lys Asp Leu Leu Gln Asp Leu Lys Phe	
371 376 381 386	
gtc cca tca gat gaa aag aag aaa caa ggt tgt caa cga gaa aat gaa	1495
Val Pro Ser Asp Glu Lys Lys Lys Gln Gly Cys Gln Arg Glu Asn Glu	
387 392 397 402	
act cta ata caa aga aga aaa gac cag atg caa cca ggg ggc act gca	1543
Thr Leu Ile Gln Arg Arg Lys Asp Gln Met Gln Pro Gly Gly Thr Ala	
403 408 413 418	
att agt gtt aca gta cct tat aga gta gta gac cag ccc ctt aaa ctt	1591
Ile Ser Val Thr Val Pro Tyr Arg Val Val Asp Gln Pro Leu Lys Leu	
419 424 429 434	
atg cct caa gac tgg gac cgc gtt gta gcc gtt ttt gtg cag ggt cct	1639
Met Pro Gln Asp Trp Asp Arg Val Val Ala Val Phe Val Gln Gly Pro	
435 440 445 450	
gca tgg cag ttc aaa ggt tgg cca tgg ctt ttg cct gat gga tca cca	1687
Ala Trp Gln Phe Lys Gly Trp Pro Trp Leu Leu Pro Asp Gly Ser Pro	
451 456 461 466	
gtt gat ata ttt gct aaa att aaa gcc ttc cat ctg aag tat gat gaa	1735
Val Asp Ile Phe Ala Lys Ile Lys Ala Phe His Leu Lys Tyr Asp Glu	
467 472 477 482	
gtt cgt ctg gat cca aat gtt cag aaa tgg gat gta aca gta tta gaa	1783
Val Arg Leu Asp Pro Asn Val Gln Lys Trp Asp Val Thr Val Leu Glu	
483 488 493 498	
ctc agc tat cac aaa cgt cat ttg gat aga cca gtg ttc tta cgg ttt	1831
Leu Ser Tyr His Lys Arg His Leu Asp Arg Pro Val Phe Leu Arg Phe	
499 504 509 514	
tgg gaa aca ttg gac agg tac atg gta aag cat aaa tcg cac ttg aga	1879
Trp Glu Thr Leu Asp Arg Tyr Met Val Lys His Lys Ser His Leu Arg	
515 520 525 530	
ttc tga attatttggc tcctccattt ctggaaattg agactcaagc tttatgaatt	1935
Phe *	
531	
tatcaagaac ttaaaaatga agaaggtcac agattgatct tttataagac cttatttgat	1995

gctttgtgct tcaaggagat gatacctgtc atccatataa gcaaactttt tggcttacia 2055  
ctattttttt aatattagcc ttctagtctg taatggaaat tgtatatttt gatagaagtt 2115  
ttttctccat tgggttaaatt agcattactt aaaatttggt tctttagaaa ataaatgcag 2175  
gttataaatg tgtgtatatt tagagattat aaggctctct gagccatctt ctgatttttc 2235  
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cttgtatgta cactatatct acacttactc attattttaa aagaataatg aaaaatctag 2415  
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Met Thr Arg Ser Leu Phe Lys Gly Asn Phe Trp Ser Ala Asp Ile Leu  
1 5 10 15  
agc acc atc ggc tat gac aac att atc caa cat ctg aac aat ggc cgc 153  
Ser Thr Ile Gly Tyr Asp Asn Ile Ile Gln His Leu Asn Asn Gly Arg  
17 22 27 32  
aag aac tgc aaa gag ttt gaa gac ttt cta aaa gaa agg gca gca att 201  
Lys Asn Cys Lys Glu Phe Glu Asp Phe Leu Lys Glu Arg Ala Ala Ile  
33 38 43 48  
gaa gag agg tat ggc aaa gat ctg ctc aac ctc tct agg aag aag ccg 249  
Glu Glu Arg Tyr Gly Lys Asp Leu Leu Asn Leu Ser Arg Lys Lys Pro  
49 54 59 64  
tgt gga cag tct gaa atc aac acc ctg aag cgg gcc ctt gaa gtc ttc 297  
Cys Gly Gln Ser Glu Ile Asn Thr Leu Lys Arg Ala Leu Glu Val Phe  
65 70 75 80

aag cag caa gta gac aat gtg gca caa tgt cac att cag ctt gca cag	345
Lys Gln Gln Val Asp Asn Val Ala Gln Cys His Ile Gln Leu Ala Gln	
81 86 91 96	
agt tta aga gaa gag gcc agg aag atg gaa gaa ttc agg gaa aag caa	393
Ser Leu Arg Glu Glu Ala Arg Lys Met Glu Glu Phe Arg Glu Lys Gln	
97 102 107 112	
aaa cta caa cga aaa aag aca gag ctc ata atg gat gct atc cat aaa	441
Lys Leu Gln Arg Lys Lys Thr Glu Leu Ile Met Asp Ala Ile His Lys	
113 118 123 128	
caa aag agc tta caa ttc aag aaa acc atg gat gca aag aag aac tat	489
Gln Lys Ser Leu Gln Phe Lys Lys Thr Met Asp Ala Lys Lys Asn Tyr	
129 134 139 144	
gag cag aaa tgc cgg gac aaa gat gag gca gaa cag gcc gtc agc cgg	537
Glu Gln Lys Cys Arg Asp Lys Asp Glu Ala Glu Gln Ala Val Ser Arg	
145 150 155 160	
agt gcc aac ctg gtg aac ccg aag caa caa gaa aag ctt ttt gtg aaa	585
Ser Ala Asn Leu Val Asn Pro Lys Gln Gln Glu Lys Leu Phe Val Lys	
161 166 171 176	
ctg gca act tca aag acc gca gta gag gac tca gac aaa gca tac atg	633
Leu Ala Thr Ser Lys Thr Ala Val Glu Asp Ser Asp Lys Ala Tyr Met	
177 182 187 192	
ctg cac atc ggc acc ctg gat aag gtc cga gaa gag tgg cag agt gag	681
Leu His Ile Gly Thr Leu Asp Lys Val Arg Glu Glu Trp Gln Ser Glu	
193 198 203 208	
cac atc aag gcc tgc gag gca ttt gag gct caa gaa tgt gaa cga ata	729
His Ile Lys Ala Cys Glu Ala Phe Glu Ala Gln Glu Cys Glu Arg Ile	
209 214 219 224	
aac ttc ttc cgg aat gca ttg tgg tta cat gtg aat cag ctg tca caa	777
Asn Phe Phe Arg Asn Ala Leu Trp Leu His Val Asn Gln Leu Ser Gln	
225 230 235 240	
caa tgt gtc acc agt gat gaa atg tac gaa caa gtc cga aag agt tta	825
Gln Cys Val Thr Ser Asp Glu Met Tyr Glu Gln Val Arg Lys Ser Leu	
241 246 251 256	
gaa atg tgc agc att cag agg gac att gaa tac ttt gtg aat caa cgc	873
Glu Met Cys Ser Ile Gln Arg Asp Ile Glu Tyr Phe Val Asn Gln Arg	
257 262 267 272	
aaa act gga cag att cca cca gca ccc atc atg tat gag aat ttc tac	921
Lys Thr Gly Gln Ile Pro Pro Ala Pro Ile Met Tyr Glu Asn Phe Tyr	
273 278 283 288	
tcc tcc cag aag aat gca gtc cca gca gga aag gct aca ggg cct aac	969
Ser Ser Gln Lys Asn Ala Val Pro Ala Gly Lys Ala Thr Gly Pro Asn	
289 294 299 304	
ttg gca agg aga gga ccc ctc cca att cct aaa agc tca cca gat gat	1017

Leu Ala Arg Arg Gly Pro Leu Pro Ile Pro Lys Ser Ser Pro Asp Asp  
 305 310 315 320  
 ccc aat tac tct ttg gtt gat gac tac agt ttg ctc tat cag taa aat 1065  
 Pro Asn Tyr Ser Leu Val Asp Asp Tyr Ser Leu Leu Tyr Gln \*  
 321 326 331  
 caatgaaacc agagcttttt ccggctagtg cttctgtgat atggaaaggg caccagagc 1125  
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 attttttaga gatttaaaat ttatggtaga catttaggac aacataagca agtagagttc 1245  
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 caggttatga atgaattagg ttttcaacat gggaagcatg aaatccactt ctggatttgg 1365  
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 a 1606

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 <212> DNA  
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 <222> (117)..(830)

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 atg tcg gac agt gat cta ggt gag gac gaa ggc ctc ctc tcc ctg gcg 164  
 Met Ser Asp Ser Asp Leu Gly Glu Asp Glu Gly Leu Leu Ser Leu Ala  
 1 5 10 15  
 ggc aaa agg aag cgc agg ggg aac ctg ccc aag gag tcg gtg aag atc 212  
 Gly Lys Arg Lys Arg Gly Asn Leu Pro Lys Glu Ser Val Lys Ile 32  
 17 22 27 32  
 ctc cgg gac tgg ctg tac ttg cac cgc tac aac gcc tac ccc tca gag 260  
 Leu Arg Asp Trp Leu Tyr Leu His Arg Tyr Asn Ala Tyr Pro Ser Glu 48  
 33 38 43 48  
 cag gag aag ctg agc ctt tct gga cag acc aac ctg tca gtg ctg caa 308  
 Gln Glu Lys Leu Ser Leu Ser Gly Gln Thr Asn Leu Ser Val Leu Gln

49	54	59	64	
ata tgt aac tgg ttc atc aat gcc cgg cgg cgg ctt ctc cca gac atg				356
Ile Cys Asn Trp Phe Ile Asn Ala Arg Arg Arg Leu Leu Pro Asp Met				
65	70	75	80	
ctt cgg aag gat ggc aaa gac cct aat cag ttt acc att tcc cgc cgc				404
Leu Arg Lys Asp Gly Lys Asp Pro Asn Gln Phe Thr Ile Ser Arg Arg				
81	86	91	96	
ggg ggt aag gcc tca gat gtg gcc ctc ccc cgt ggc agc agc ccc tca				452
Gly Gly Lys Ala Ser Asp Val Ala Leu Pro Arg Gly Ser Ser Pro Ser				
97	102	107	112	
gtg ctg gct gtg tct gtc cca gcc ccc acc aat gtg ctc tcc ctg tct				500
Val Leu Ala Val Ser Val Pro Ala Pro Thr Asn Val Leu Ser Leu Ser				
113	118	123	128	
gtg tgc tcc atg ccg ctt cac tca ggc cag ggg gaa aag cca gca gcc				548
Val Cys Ser Met Pro Leu His Ser Gly Gln Gly Glu Lys Pro Ala Ala				
129	134	139	144	
cct ttc cca cgt ggg gag ctg gag tct ccc aag ccc ctg gtg acc cct				596
Pro Phe Pro Arg Gly Glu Leu Glu Ser Pro Lys Pro Leu Val Thr Pro				
145	150	155	160	
ggt agc aca ctt act ctg ctg acc agg gct gag gct gga agc ccc aca				644
Gly Ser Thr Leu Thr Leu Leu Thr Arg Ala Glu Ala Gly Ser Pro Thr				
161	166	171	176	
ggt gga ctc ttc aac acg cca cca ccc aca ccc cca gag cag gac aaa				692
Gly Gly Leu Phe Asn Thr Pro Pro Pro Thr Pro Pro Glu Gln Asp Lys				
177	182	187	192	
gag gac ttc agc agc ttc cag ctg ctg gtg gag gtg gcg cta cag agg				740
Glu Asp Phe Ser Ser Phe Gln Leu Leu Val Glu Val Ala Leu Gln Arg				
193	198	203	208	
gct gct gag atg gag ctt cag aag cag cag gac cca tca ctc cca tta				788
Ala Ala Glu Met Glu Leu Gln Lys Gln Gln Asp Pro Ser Leu Pro Leu				
209	214	219	224	
ctg cac act ccc atc cct tta gtc tct gaa aat ccc cag tag gcactctg				837
Leu His Thr Pro Ile Pro Leu Val Ser Glu Asn Pro Gln *				
225	230	235		
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atacagaggg ttttctatgg atcactgcc aacattggga tcatctctc tgtccagagg				957
tcttcaacag gaagatgcc gctggcacca ctgcactgtg atggggggccc tctcctctgc				1017
tgactctgcc gtttctccag gcctccgctc agtgatgaga ccaagagatc ggagacaagc				1077
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 ctaaactggt ttctttttcc cttttttgct gtggtttgca ttcacggcag tagtttagccc 1377  
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 cactgccact gaggattggt ttggaagaaa ggaatatttt tatcttgggg accagctaag 1497  
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 aaaggattta cttgggggat ttagctcctg ccatcttttg attgccattt tctcatggaa 180  
 gatatagctt cttagctggg ccggaagcag atgccggcgg cgcggcgtgg cagggttggtg 240  
 gttccgggtc gggccgcgcc gcagccagct ctgggctcgc agccgcagcg ccccgccccc 300  
 gcgctccgga cctggcaggc ggcggctgca gggcaggtcc aggggccac atg gct 355  
 Met Ala  
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gag ggg gac gca ggg agc gac cag agg cag aat gag gaa att gaa gca 403  
 Glu Gly Asp Ala Gly Ser Asp Gln Arg Gln Asn Glu Glu Ile Glu Ala  
 3 8 13 18

atg gca gcc att tat ggc gag gag tgg tgt gtc att gat gac tgt gcc 451  
 Met Ala Ala Ile Tyr Gly Glu Glu Trp Cys Val Ile Asp Asp Cys Ala  
 19 24 29 34

aaa ata ttt tgt att aga att agc gac gat ata gat gac ccc aaa tgg 499  
 Lys Ile Phe Cys Ile Arg Ile Ser Asp Asp Ile Asp Asp Pro Lys Trp  
 35 40 45 50

aca ctt tgc ttg cag gtg atg ctg ccg aat gaa tac cca ggt aca gct 547  
 Thr Leu Cys Leu Gln Val Met Leu Pro Asn Glu Tyr Pro Gly Thr Ala  
 51 56 61 66

cca cct atc tac cag ttg aat gct cct tgg ctt aaa ggg caa gaa cgt	595
Pro Pro Ile Tyr Gln Leu Asn Ala Pro Trp Leu Lys Gly Gln Glu Arg	
67 72 77 82	
gcg gat tta tca aat agc ctt gag gaa ata tat att cag aat atc ggt	643
Ala Asp Leu Ser Asn Ser Leu Glu Glu Ile Tyr Ile Gln Asn Ile Gly	
83 88 93 98	
gaa agt att ctt tac ctg tgg gtg gag aaa ata aga gat gtt ctt ata	691
Glu Ser Ile Leu Tyr Leu Trp Val Glu Lys Ile Arg Asp Val Leu Ile	
99 104 109 114	
caa aaa tct cag atg aca gaa cca ggc cca gat gta aag aag aaa act	739
Gln Lys Ser Gln Met Thr Glu Pro Gly Pro Asp Val Lys Lys Lys Thr	
115 120 125 130	
gaa gag gaa gat gtt gaa tgt gaa gat gat ctc att tta gca tgt cag	787
Glu Glu Glu Asp Val Glu Cys Glu Asp Asp Leu Ile Leu Ala Cys Gln	
131 136 141 146	
ccg gaa agt tcg gtt aaa gca ttg gat ttt gat atc agt gaa act cgg	835
Pro Glu Ser Ser Val Lys Ala Leu Asp Phe Asp Ile Ser Glu Thr Arg	
147 152 157 162	
aca gaa gta gaa gta gaa gaa tta cct ccg att gat cat ggc att cct	883
Thr Glu Val Glu Val Glu Glu Leu Pro Pro Ile Asp His Gly Ile Pro	
163 168 173 178	
att aca gac cga aga agt act ttt cag gca cac ttg gct cca gtg gtt	931
Ile Thr Asp Arg Arg Ser Thr Phe Gln Ala His Leu Ala Pro Val Val	
179 184 189 194	
tgt ccc aaa cag gtg aaa atg gtt ctt tcc aaa ttg tat gag aat aag	979
Cys Pro Lys Gln Val Lys Met Val Leu Ser Lys Leu Tyr Glu Asn Lys	
195 200 205 210	
aaa ata gct agt gcc acc cac aac atc tat gcc tac aga ata tat tgt	1027
Lys Ile Ala Ser Ala Thr His Asn Ile Tyr Ala Tyr Arg Ile Tyr Cys	
211 216 221 226	
gag gat aaa cag acc ttc tta cag gat tgt gag gat gat ggg gaa aca	1075
Glu Asp Lys Gln Thr Phe Leu Gln Asp Cys Glu Asp Asp Gly Glu Thr	
227 232 237 242	
gca gct ggt ggg cgt ctt ctt cat ctc atg gag att ttg aat gtg aag	1123
Ala Ala Gly Gly Arg Leu Leu His Leu Met Glu Ile Leu Asn Val Lys	
243 248 253 258	
aat gtc atg gtg gta gta tca cgc tgg tat gga ggg att ctg cta gga	1171
Asn Val Met Val Val Val Ser Arg Trp Tyr Gly Gly Ile Leu Leu Gly	
259 264 269 274	
cca gat cgc ttt aaa cat atc aac aac tgt gcc aga aac ata cta gtg	1219
Pro Asp Arg Phe Lys His Ile Asn Asn Cys Ala Arg Asn Ile Leu Val	
275 280 285 290	



gaa aag aac tac aca aat tca cct gag gag tca tct aag gct ttg gga	1267
Glu Lys Asn Tyr Thr Asn Ser Pro Glu Glu Ser Ser Lys Ala Leu Gly	
291 296 301 306	
aag aac aaa aaa gta aga aaa gac aag aag agg aat gaa cat taa tac	1315
Lys Asn Lys Lys Val Arg Lys Asp Lys Lys Arg Asn Glu His *	
307 312 317	
ctgaaactat aggaaagggt aatttgccta taattatata tacattccat agtcatcaag	1375
gaatatattg tgcagagaga gtatccttga ctgcttaagt cagccagttc agcatggata	1435
ccaacattag cttttcttct tgggttatatc atctgccaaa aatagagaac ttatgatcta	1495
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aatttttagca aggtaacagt tgcccagggc agtacctgaa ttaactgtcc atttcagtac	1615
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aatccaggag tatccatctg cagttatgtg ctgaggtgat aattcatcca acatatttgt	1915
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tgattttcta gtctgctttt tttgtttaat tcttgtaatg taagcaataa atatggagtg	2035
tcagtagtct ccttccacc cagaaatgtg ttggtgtaac attctcgttt cttttaacaa	2095
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aaaggattta cttgggggat ttagctcctg ccatcttttg attgccattt tctcatggaa	180

gatatatagctt ctttagctggg ccggaagcag atgccggcgg cgcgggcgtgg caggggttg	240
gttccggggtc gggccgcgcc gcagccagct ctcggtctgc agccgcagcg ccccgccccc	300
gcgctccgga cctggcaggc ggcggctgca gggcaggtcc agggggccac atg gct	355
	Met Ala
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gag ggg gac gca ggg agc gac cag agg cag aat gag gaa att gaa gca	403
Glu Gly Asp Ala Gly Ser Asp Gln Arg Gln Asn Glu Glu Ile Glu Ala	
3 8 13 18	
atg gca gcc att tat ggc gag gag tgg tgt gtc att gat gac tgt gcc	451
Met Ala Ala Ile Tyr Gly Glu Glu Trp Cys Val Ile Asp Asp Cys Ala	
19 24 29 34	
aaa ata ttt tgt att aga att agc gac gat ata gat gac ccc aaa tgg	499
Lys Ile Phe Cys Ile Arg Ile Ser Asp Asp Ile Asp Asp Pro Lys Trp	
35 40 45 50	
aca ctt tgc ttg cag gtg atg ctg ccg aat gaa tac cca gtg gag aaa	547
Thr Leu Cys Leu Gln Val Met Leu Pro Asn Glu Tyr Pro Val Glu Lys	
51 56 61 66	
ata aga gat gtt ctt ata caa aaa tct cag atg aca gaa cca ggc cca	595
Ile Arg Asp Val Leu Ile Gln Lys Ser Gln Met Thr Glu Pro Gly Pro	
67 72 77 82	
gat gta aag aag aaa act gaa gag gaa gat gtt gaa tgt gaa gat gat	643
Asp Val Lys Lys Lys Thr Glu Glu Glu Asp Val Glu Cys Glu Asp Asp	
83 88 93 98	
ctc att tta gca tgt cag ccg gaa agt tcg gtt aaa gca ttg gat ttt	691
Leu Ile Leu Ala Cys Gln Pro Glu Ser Ser Val Lys Ala Leu Asp Phe	
99 104 109 114	
gat atc agt gaa act cgg aca gaa gta gaa gta gaa gaa tta cct ccg	739
Asp Ile Ser Glu Thr Arg Thr Glu Val Glu Val Glu Glu Leu Pro Pro	
115 120 125 130	
att gat cat ggc att cct att aca gac cga aga agt act ttt cag gca	787
Ile Asp His Gly Ile Pro Ile Thr Asp Arg Arg Ser Thr Phe Gln Ala	
131 136 141 146	
cac ttg gct cca gtg gtt tgt ccc aaa cag gtg aaa atg gtt ctt tcc	835
His Leu Ala Pro Val Val Cys Pro Lys Gln Val Lys Met Val Leu Ser	
147 152 157 162	
aaa ttg tat gag aat aag aaa ata gct agt gcc acc cac aac atc tat	883
Lys Leu Tyr Glu Asn Lys Lys Ile Ala Ser Ala Thr His Asn Ile Tyr	
163 168 173 178	
gcc tac aga ata tat tgt gag gat aaa cag acc ttc tta cag gat tgt	931
Ala Tyr Arg Ile Tyr Cys Glu Asp Lys Gln Thr Phe Leu Gln Asp Cys	
179 184 189 194	
gag gat gat ggg gaa aca gca gct ggt ggg cgt ctt ctt cat ctc atg	979

Glu Asp Asp Gly Glu Thr Ala Ala Gly Gly Arg Leu Leu His Leu Met	
195	200 205 210
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Glu Ile Leu Asn Val Lys Asn Val Met Val Val Val Ser Arg Trp Tyr	
211	216 221 226
gga ggg att ctg cta gga cca gat cgc ttt aaa cat atc aac aac tgt	1075
Gly Gly Ile Leu Leu Gly Pro Asp Arg Phe Lys His Ile Asn Asn Cys	
227	232 237 242
gcc aga aac ata cta gtg gaa aag aac tac aca aat tca cct gag gag	1123
Ala Arg Asn Ile Leu Val Glu Lys Asn Tyr Thr Asn Ser Pro Glu Glu	
243	248 253 258
tca tct aag gct ttg gga aag aac aaa aaa gta aga aaa gac aag aag	1171
Ser Ser Lys Ala Leu Gly Lys Asn Lys Lys Val Arg Lys Asp Lys Lys	
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agg aat gaa cat taa tacctgaaac tataggaaag gttaatttgc ctataattat	1226
Arg Asn Glu His *	
275	
atatacattc catagtcac c aaggaatata ttgtgcagag agagtatcct tgactgctta	1286
agtcagccag ttcagcatgg ataccaacat tagcttttct tcttggttat atcatctgcc	1346
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gaattaactg tccatttcag tacatgtcaa gtgcctttgt taggtggaga agaaatgtct	1526
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aacattctcg tttcttttaa caacctggaa gtacctttct tgtgatcttc actgaggaat	2006
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 gtttttcagt atatacgatt catagatctg gaattcggtg ccgcgtcgac g atg gcg 177  
 Met Ala  
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 Met Ser Phe Glu Trp Pro Trp Gln Tyr Arg Phe Pro Pro Phe Phe Thr  
 3 8 13 18  
 tta caa ccg aat gtg gac act cgg cag aag cag ctg gcc gcc tgg tgc 273  
 Leu Gln Pro Asn Val Asp Thr Arg Gln Lys Gln Leu Ala Ala Trp Cys  
 19 24 29 34  
 tcg ctg gtc ctg tcc ttc tgc cgc ctg cac aaa cag tcc agc atg acg 321  
 Ser Leu Val Leu Ser Phe Cys Arg Leu His Lys Gln Ser Ser Met Thr  
 35 40 45 50  
 gtg atg gaa gct cag gag agc ccg ctc ttc aac aac gtc aag cta cag 369  
 Val Met Glu Ala Gln Glu Ser Pro Leu Phe Asn Asn Val Lys Leu Gln  
 51 56 61 66  
 cga aag ctt cct gtg gag tgc atc cag att gta tta gag gaa ctg agg 417  
 Arg Lys Leu Pro Val Glu Ser Ile Gln Ile Val Leu Glu Glu Leu Arg  
 67 72 77 82  
 aag aaa ggg aac ctc gag tgg ttg gat aag agc aag tcc agc ttc ctg 465  
 Lys Lys Gly Asn Leu Glu Trp Leu Asp Lys Ser Lys Ser Ser Phe Leu  
 83 88 93 98  
 atc atg tgg cgg agg cca gaa gaa tgg ggg aaa ctc atc tat cag tgg 513  
 Ile Met Trp Arg Arg Pro Glu Glu Trp Gly Lys Leu Ile Tyr Gln Trp  
 99 104 109 114  
 gtt tcc agg agt ggc cag aac aac tcc gtc ttt acc ctg tat gaa ctg 561  
 Val Ser Arg Ser Gly Gln Asn Asn Ser Val Phe Thr Leu Tyr Glu Leu  
 115 120 125 130  
 act aat ggg gaa gac aca gag gat gag gag ttc cac ggg ctg gat gaa 609  
 Thr Asn Gly Glu Asp Thr Glu Asp Glu Glu Phe His Gly Leu Asp Glu  
 131 136 141 146  
 gcc act cta ctg cgg gct ctg cag gcc cta cag cag gag cac aag gcc 657  
 Ala Thr Leu Leu Arg Ala Leu Gln Ala Leu Gln Gln Glu His Lys Ala  
 147 152 157 162

gag atc atc act gtc agc gat ggc cga ggc gtc aag ttc ttc tag cag 705  
 Glu Ile Ile Thr Val Ser Asp Gly Arg Gly Val Lys Phe Phe \*  
 163 168 173

ggacctgtct ccctttactt cttacctccc acctttccag ggctttcaaa aggagacaga 765

cccagtgtcc cccaaagact ggatctgtga ctccaccaga ctcaaaagga ctccagtcct 825

gaaggctggg acctggggat ggggtttctca caccocatat gtctgtccct tggatagggg 885

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gtacatacac acatgcgct gcagcacatg cttctgtctc ctctctctcc cacccttta 1065

gctgctgttg cctcccttct caggctggtg ctggatcctt cctaggggat gggggaagcc 1125

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gagggtgtggc cccacaccga tttatgatat taaaatctca actcccaaaa aaaaaaa 1243

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<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (218) .. (1645)

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cccaggtcgc cgtcagctc cactagaga caggactgac cagttgtctc tccttccaag 180

aaccttcgag atctgcggtc tggggtctgg ttgaaag atg gcg gcc ctc act acc 235  
 Met Ala Ala Leu Thr Thr

1

ctg ttt aag tac ata gat gaa aat cag gat cgc tac att aag aaa ctc 283  
 Leu Phe Lys Tyr Ile Asp Glu Asn Gln Asp Arg Tyr Ile Lys Lys Leu  
 7 12 17 22

gca aaa tgg gtg gct atc cag agt gtg tct gcg tgg ccg gag aag aga 331  
 Ala Lys Trp Val Ala Ile Gln Ser Val Ser Ala Trp Pro Glu Lys Arg  
 23 28 33 38

ggc gaa atc agg agg atg atg gaa gtt gct gct gca gat gtt aag cag 379  
 Gly Glu Ile Arg Arg Met Met Glu Val Ala Ala Ala Asp Val Lys Gln  
 39 44 49 54

ttg ggg ggc tct gtg gaa ctg gtg gat atc gga aaa caa aag ctc cct	427
Leu Gly Gly Ser Val Glu Leu Val Asp Ile Gly Lys Gln Lys Leu Pro	
55 60 65 70	
gat ggc tcg gag atc ccg ctc cct cct att ctg ctc ggc agg ctg ggc	475
Asp Gly Ser Glu Ile Pro Leu Pro Pro Ile Leu Leu Gly Arg Leu Gly	
71 76 81 86	
tct gac cca cag aag aag acc gtg tgc att tac ggg cac ctg gat gtg	523
Ser Asp Pro Gln Lys Lys Thr Val Cys Ile Tyr Gly His Leu Asp Val	
87 92 97 102	
cag cct gca gcc ctg gag gac ggc tgg gac agc gag ccc ttc acc ctg	571
Gln Pro Ala Ala Leu Glu Asp Gly Trp Asp Ser Glu Pro Phe Thr Leu	
103 108 113 118	
gtg gag cga gac ggc aag ctg tat ggg aga ggt tcg act gat gat aag	619
Val Glu Arg Asp Gly Lys Leu Tyr Gly Arg Gly Ser Thr Asp Asp Lys	
119 124 129 134	
ggc ccg gtg gcc ggc tgg ata aac gcc ctg gaa gcg tat cag aaa aca	667
Gly Pro Val Ala Gly Trp Ile Asn Ala Leu Glu Ala Tyr Gln Lys Thr	
135 140 145 150	
ggc cag gag att cct gtc aac gtc cga ttc tgc ctc gaa ggc atg gag	715
Gly Gln Glu Ile Pro Val Asn Val Arg Phe Cys Leu Glu Gly Met Glu	
151 156 161 166	
gag tca ggc tct gag ggc cta gac gag ctg att ttt gcc cgg aaa gac	763
Glu Ser Gly Ser Glu Gly Leu Asp Glu Leu Ile Phe Ala Arg Lys Asp	
167 172 177 182	
aca ttc ttt aag gat gtg gac tat gtc tgc att tct gac aat tac tgg	811
Thr Phe Phe Lys Asp Val Asp Tyr Val Cys Ile Ser Asp Asn Tyr Trp	
183 188 193 198	
ctg gga aag aag aag ccc tgc atc acc tac ggc ctc agg ggc att tgc	859
Leu Gly Lys Lys Lys Pro Cys Ile Thr Tyr Gly Leu Arg Gly Ile Cys	
199 204 209 214	
tac ttt ttc atc gag gtg gag tgc agc aac aaa gac ctc cat tct ggg	907
Tyr Phe Phe Ile Glu Val Glu Cys Ser Asn Lys Asp Leu His Ser Gly	
215 220 225 230	
gtg tac ggg ggc tcg gtg cat gag gcc atg act gat ctc att ttg ctg	955
Val Tyr Gly Gly Ser Val His Glu Ala Met Thr Asp Leu Ile Leu Leu	
231 236 241 246	
atg ggc tct ttg gtg gac aag agg ggg aac atc ctg atc ccc ggc att	1003
Met Gly Ser Leu Val Asp Lys Arg Gly Asn Ile Leu Ile Pro Gly Ile	
247 252 257 262	
aac gag gcc gtg gcc gcc gtc acg gaa gag gag cac aag ctg tac gac	1051
Asn Glu Ala Val Ala Ala Val Thr Glu Glu Glu His Lys Leu Tyr Asp	
263 268 273 278	
gac atc gac ttt gac ata gag gag ttt gcc aag gat gtg ggg gcg cag	1099

Asp Ile Asp Phe Asp Ile Glu Glu Phe Ala Lys Asp Val Gly Ala Gln	
279 284 289 294	
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Ile Leu Leu His Ser His Lys Lys Asp Ile Leu Met His Arg Trp Arg	
295 300 305 310	
tac ccg tct ctg tcc ctc cat ggc atc gaa ggc gcc ttc tct ggg tct	1195
Tyr Pro Ser Leu Ser Leu His Gly Ile Glu Gly Ala Phe Ser Gly Ser	
311 316 321 326	
ggg gcc aag acc gtg att ccc agg aag gtg gtt ggc aag ttc tcc atc	1243
Gly Ala Lys Thr Val Ile Pro Arg Lys Val Val Gly Lys Phe Ser Ile	
327 332 337 342	
agg ctc gtg ccg aac atg act cct gaa gtc gtc ggc gag cag gtc aca	1291
Arg Leu Val Pro Asn Met Thr Pro Glu Val Val Gly Glu Gln Val Thr	
343 348 353 358	
agc tac cta act aag aag ttt gct gaa cta cgc agc ccc aat gag ttc	1339
Ser Tyr Leu Thr Lys Lys Phe Ala Glu Leu Arg Ser Pro Asn Glu Phe	
359 364 369 374	
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Lys Val Tyr Met Gly His Gly Gly Lys Pro Trp Val Ser Asp Phe Ser	
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His Pro His Tyr Leu Ala Gly Arg Arg Ala Met Lys Thr Val Phe Gly	
391 396 401 406	
gtt gag cca gac ttg acc agg gaa ggc ggc agt att ccc gtg acc ttg	1483
Val Glu Pro Asp Leu Thr Arg Glu Gly Gly Ser Ile Pro Val Thr Leu	
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Thr Phe Gln Glu Ala Thr Gly Lys Asn Val Met Leu Leu Pro Val Gly	
423 428 433 438	
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Ser Ala Asp Asp Gly Ala His Ser Gln Asn Glu Lys Leu Asn Arg Tyr	
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Asn Tyr Ile Glu Gly Thr Lys Met Leu Ala Ala Tyr Leu Tyr Glu Val	
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Ser Gln Leu Lys Asp *	
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           Met Glu Ser Ala Gly Leu Glu Gln Leu Leu Arg Glu Leu  
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 ctg cta ccg gac acc gag cgc atc cgt cgg gcc acg gaa cag ctc cag 158  
 Leu Leu Pro Asp Thr Glu Arg Ile Arg Arg Ala Thr Glu Gln Leu Gln  
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 atc gtt ctt cgg gcc ccc gcc gct ttg tgg gct ctc tgc gac ctg cta 206  
 Ile Val Leu Arg Ala Pro Ala Ala Leu Ser Ala Leu Cys Asp Leu Leu  
   30                  35                  40                  45



gcc tcg gcg gcc gac ccc cag atc cgc cag ttt gcg gcc gtg ctg acc	254
Ala Ser Ala Ala Asp Pro Gln Ile Arg Gln Phe Ala Ala Val Leu Thr	
46 51 56 61	
cgc aga cga ctg aac acc cgc tgg cga cgg ctg gcg gcg gag caa cgg	302
Arg Arg Arg Leu Asn Thr Arg Trp Arg Arg Leu Ala Ala Glu Gln Arg	
62 67 72 77	
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Glu Ser Leu Lys Ser Leu Ile Leu Thr Ala Leu Gln Arg Glu Thr Glu	
78 83 88 93	
cac tgt gtg agc ctc agc ctg gcc cag ctc tca gcc acc att ttt cga	398
His Cys Val Ser Leu Ser Leu Ala Gln Leu Ser Ala Thr Ile Phe Arg	
94 99 104 109	
aag gaa ggc ttg gag gcc tgg cca cag ctt ttg cag ctg ctt cag cac	446
Lys Glu Gly Leu Glu Ala Trp Pro Gln Leu Leu Gln Leu Leu Gln His	
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agt acc cac agc ccc cac agc cca gag aga gag atg ggg ctt ttg ctg	494
Ser Thr His Ser Pro His Ser Pro Glu Arg Glu Met Gly Leu Leu Leu	
126 131 136 141	
cta agt gtg gtg gtg acc tcc cgg ccc gag gcc ttc caa ccc cac cac	542
Leu Ser Val Val Val Thr Ser Arg Pro Glu Ala Phe Gln Pro His His	
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Arg Glu Leu Leu Arg Leu Leu Asn Glu Thr Leu Gly Glu Val Gly Ser	
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Pro Gly Leu Leu Phe Tyr Ser Leu Arg Thr Leu Thr Thr Met Ala Pro	
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Tyr Leu Ser Thr Glu Asp Val Pro Leu Ala Arg Met Leu Val Pro Lys	
190 195 200 205	
ctg atc atg gcc atg cag act ctg atc ccc ata gat gag gca aag gcc	734
Leu Ile Met Ala Met Gln Thr Leu Ile Pro Ile Asp Glu Ala Lys Ala	
206 211 216 221	
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Cys Glu Ala Leu Glu Ala Leu Asp Glu Leu Leu Glu Ser Glu Val Pro	
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Val Ile Thr Pro Tyr Leu Ser Glu Val Leu Thr Phe Cys Leu Glu Val	
238 243 248 253	
gct aga aat gtg gcc ctg ggc aat gcg ata cgc ata cgt att ctc tgc	878
Ala Arg Asn Val Ala Leu Gly Asn Ala Ile Arg Ile Arg Ile Leu Cys	
254 259 264 269	
tgc ctc act ttc ttg gtc aaa gtc aag agc aag gcc tta ctg aag aat	926

Cys	Leu	Thr	Phe	Leu	Val	Lys	Val	Lys	Ser	Lys	Ala	Leu	Leu	Lys	Asn		
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cgt	ctc	ctg	cca	ccc	ttg	ctg	cac	acc	ctt	ttc	ccc	att	gtg	gct	gct	974	
Arg	Leu	Leu	Pro	Pro	Leu	Leu	His	Thr	Leu	Phe	Pro	Ile	Val	Ala	Ala		
286					291					296					301		
gag	ccc	cca	cca	ggc	cag	ttg	gat	ccc	gag	gac	cag	gat	tca	gaa	gag	1022	
Glu	Pro	Pro	Pro	Gly	Gln	Leu	Asp	Pro	Glu	Asp	Gln	Asp	Ser	Glu	Glu		
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gaa	gag	ttg	gag	att	gag	ctg	atg	ggg	gag	act	ccc	aag	cat	ttc	gct	1070	
Glu	Glu	Leu	Glu	Ile	Glu	Leu	Met	Gly	Glu	Thr	Pro	Lys	His	Phe	Ala		
318					323					328					333		
gta	caa	gtt	gtg	gac	atg	ctg	gca	cta	cac	ctg	ccc	ccc	gag	aag	ctc	1118	
Val	Gln	Val	Val	Asp	Met	Leu	Ala	Leu	His	Leu	Pro	Pro	Glu	Lys	Leu		
334					339					344					349		
tgt	ccc	cag	ctg	atg	ccc	atg	ttg	gaa	gag	gct	ttg	cgg	agc	gag	agc	1166	
Cys	Pro	Gln	Leu	Met	Pro	Met	Leu	Glu	Glu	Ala	Leu	Arg	Ser	Glu	Ser		
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cca	tac	cag	cgc	aaa	gct	gga	ctc	ctg	gtg	ctg	gcc	gtg	ctg	tct	gac	1214	
Pro	Tyr	Gln	Arg	Lys	Ala	Gly	Leu	Leu	Val	Leu	Ala	Val	Leu	Ser	Asp		
366					371					376					381		
gga	gct	ggc	gac	cac	atc	agg	cag	aga	ctg	ctg	ccc	cca	ctg	ctg	cag	1262	
Gly	Ala	Gly	Asp	His	Ile	Arg	Gln	Arg	Leu	Leu	Pro	Pro	Leu	Leu	Gln		
382					387					392					397		
att	gtg	tgc	aag	ggc	ctg	gag	gac	ccc	tgc	caa	gtt	gta	cgc	aat	gct	1310	
Ile	Val	Cys	Lys	Gly	Leu	Glu	Asp	Pro	Ser	Gln	Val	Val	Arg	Asn	Ala		
398					403					408					413		
gcg	ctg	ttt	gcc	ctg	ggc	cag	ttc	tca	gaa	aac	cta	cag	ccc	cat	atc	1358	
Ala	Leu	Phe	Ala	Leu	Gly	Gln	Phe	Ser	Glu	Asn	Leu	Gln	Pro	His	Ile		
414					419					424					429		
agc	agc	tat	tca	agg	gag	gta	atg	cca	ctg	ctc	ctc	gcc	tac	ttg	aag	1406	
Ser	Ser	Tyr	Ser	Arg	Glu	Val	Met	Pro	Leu	Leu	Leu	Ala	Tyr	Leu	Lys		
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tgc	gtg	cct	ctt	gga	cac	aca	cac	cac	cta	gcc	aag	gcc	tgc	tat	gcc	1454	
Ser	Val	Pro	Leu	Gly	His	Thr	His	His	Leu	Ala	Lys	Ala	Cys	Tyr	Ala		
446					451					456					461		
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462					467					472					477		
ccg	gag	ctt	atg	gaa	tgc	atg	ctg	cag	ctt	ctg	agg	aac	ccc	agc	agt	1550	
Pro	Glu	Leu	Met	Glu	Cys	Met	Leu	Gln	Leu	Leu	Arg	Asn	Pro	Ser	Ser		
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ccc	cgg	gcc	aag	gag	ctg	gct	gtg	agc	gcc	ctg	gga	gcc	att	gct	acg	1598	
Pro	Arg	Ala	Lys	Glu	Leu	Ala	Val	Ser	Ala	Leu	Gly	Ala	Ile	Ala	Thr		

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Ala Ala Gln Ala Ser Leu Leu Pro Tyr Phe Thr Ala Ile Met Glu His				
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ctg cgg gaa ttc ctg tta aca ggc cgt gag acc ttc agc ctg tgc aga				1694
Leu Arg Glu Phe Leu Leu Thr Gly Arg Glu Thr Phe Ser Leu Cys Arg				
526	531	536	541	
tac aga gca tgg aga cac tgg ggg tgc tgg aca caa caa gtg ggg agc				1742
Tyr Arg Ala Trp Arg His Trp Gly Cys Trp Thr Gln Gln Val Gly Ser				
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cca taa agcccgcctgg tgaggaaatg ctgcacattg ggtcctggac tcctccaaca				1798
Pro *				
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 Gln Arg Ser Met Ala Val Ser Gln Pro Asn Leu Val Met Asn His Gln  
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 act cag aac cca ccc gca ggg ctc atg agt atg ccc aat gcg ctg acc 947  
 Thr Gln Asn Pro Pro Ala Gly Leu Met Ser Met Pro Asn Ala Leu Thr  
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 Thr Gln Gln Gln Gln Gln Gln Lys Leu Arg Leu Gln Arg Ile Gln Met  
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 Glu Arg Glu Arg Ile Arg Met Arg Gln Glu Glu Leu Met Arg Gln Glu  
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 gtc ccc aca act ccg gag gac ttc ctd agc aat gtg gat gag atg gat 1283  
 Val Pro Thr Thr Pro Glu Asp Phe Leu Ser Asn Val Asp Glu Met Asp  
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 aca gga gaa aac gca gga caa aca ccc atg aac atc aat ccc caa cag 1331



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aa atg aaa gta gaa gaa gag cat acc aat gca ata ggc act ctc cac	407
Met Lys Val Glu Glu Glu His Thr Asn Ala Ile Gly Thr Leu His	
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Gly Gly Leu Thr Ala Thr Leu Val Asp Asn Ile Ser Thr Met Ala Leu	
16 21 26 31	
cta tgc acg gaa agg gga gca ccc gga gtc agt gtc gat atg aac ata	503
Leu Cys Thr Glu Arg Gly Ala Pro Gly Val Ser Val Asp Met Asn Ile	
32 37 42 47	
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Thr Tyr Met Ser Pro Ala Lys Leu Gly Glu Asp Ile Val Ile Thr Ala	
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His Val Leu Lys Gln Gly Lys Thr Leu Ala Phe Thr Ser Val Asp Leu	
64 69 74 79	
acc aac aag gcc aca gga aaa tta ata gca caa gga aga cac aca aaa	647
Thr Asn Lys Ala Thr Gly Lys Leu Ile Ala Gln Gly Arg His Thr Lys	
80 85 90 95	
cac ctg gga aac tga gagaacagca gaatgaccta aagaaaccca acaatgaata	702
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	Met Asp Leu Leu Gln Phe Leu Ala Phe	
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Leu Phe Val Leu Leu Leu Ser Gly Met Gly Ala Thr Gly Thr Leu Arg		
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Thr Ser Leu Asp Pro Ser Leu Glu Ile Tyr Lys Lys Met Phe Glu Val		
26 31 36 41		
aag cgg cgg gag cag ctg ttg gca ctg aag aac ctg gca cag ctg aac		374
Lys Arg Arg Glu Gln Leu Leu Ala Leu Lys Asn Leu Ala Gln Leu Asn		
42 47 52 57		
gac atc cac cag cag tac aag atc ctt gat gtc atg ctc aag ggg ctc		422
Asp Ile His Gln Gln Tyr Lys Ile Leu Asp Val Met Leu Lys Gly Leu		
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Phe Lys Val Leu Glu Asp Ser Arg Thr Val Leu Thr Ala Ala Asp Val		
74 79 84 89		
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Leu Pro Asp Gly Pro Phe Pro Gln Asp Glu Lys Leu Lys Asp Ala Phe		
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Ser His Val Val Glu Asn Thr Ala Phe Phe Gly Asp Val Val Leu Arg		
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Phe Pro Arg Ile Val His Tyr Tyr Phe Asp His Asn Ser Asn Trp Asn		
122 127 132 137		
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Leu Leu Ile Arg Trp Gly Ile Ser Phe Cys Asn Gln Thr Gly Val Phe		
138 143 148 153		
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Asn Gln Gly Pro His Ser Pro Ile Leu Ser Leu Met Ala Gln Glu Leu		
154 159 164 169		
ggg atc agt gag aaa gac tcc aac ttc cag aac cca ttt aaa atc gac		758
Gly Ile Ser Glu Lys Asp Ser Asn Phe Gln Asn Pro Phe Lys Ile Asp		
170 175 180 185		
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Arg Thr Glu Phe Ile Pro Ser Thr Asp Pro Phe Gln Lys Ala Leu Arg		
186 191 196 201		
gaa gaa gag aaa cgc cga aag aaa gag gag aag cgg aag gag atc cga		854
Glu Glu Glu Lys Arg Arg Lys Lys Glu Glu Lys Arg Lys Glu Ile Arg		
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<400> 936

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tttttttttg gcaaacacagt tattcaagtt tctgggtcttt aaaaaactct gtggcgggtac 180
ggtaaccgag gaggttccag cgcggcggaa gtaccccgcg ggtgggtgtg tgcgcaaggc 240
cagggccaga ggggcacgtg gcgccgggag gagagaga atg tct ttt cga ggc 293
Met Ser Phe Arg Gly
1

gga ggt cgt gga ggc ttt aat cga ggt ggt gga ggt ggc ggc ttc aac 341
Gly Gly Arg Gly Gly Phe Asn Arg Gly Gly Gly Gly Gly Phe Asn
6 11 16 21

cga ggc ggc agc agc aac cac ttc cga ggt gga ggc ggc ggt gga ggc 389
Arg Gly Gly Ser Ser Asn His Phe Arg Gly Gly Gly Gly Gly Gly Gly
22 27 32 37

ggc ggc aat ttc aga ggc ggc ggc agg gga gga ttt gga cga ggg ggt 437
Gly Gly Asn Phe Arg Gly Gly Gly Arg Gly Gly Phe Gly Arg Gly Gly
38 43 48 53

ggc cgc gga ggc ttt aac aaa ggc caa gac caa gga cct cca gaa cgt 485
Gly Arg Gly Gly Phe Asn Lys Gly Gln Asp Gln Gly Pro Pro Glu Arg
54 59 64 69

gta gtc tta tta gga gag ttc ctg cat ccc tgt gaa gat gac ata gtt 533
Val Val Leu Leu Gly Glu Phe Leu His Pro Cys Glu Asp Asp Ile Val
70 75 80 85

tgt aaa tgt acc aca gat gaa aat aag gtg cct tat ttc aat gct cct 581
Cys Lys Cys Thr Thr Asp Glu Asn Lys Val Pro Tyr Phe Asn Ala Pro
86 91 96 101

gtt tac tta gaa aac aaa gaa caa att gga aaa gtg gat gaa ata ttt 629
Val Tyr Leu Glu Asn Lys Glu Gln Ile Gly Lys Val Asp Glu Ile Phe
102 107 112 117
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gga caa ctc aga gat ttt tat ttt tca gtt aag ttg tca gaa aac atg	677
Gly Gln Leu Arg Asp Phe Tyr Phe Ser Val Lys Leu Ser Glu Asn Met	
118 123 128 133	
aag gct tca tcc ttt aaa aaa cta cag aag ttt tat ata gac cca tat	725
Lys Ala Ser Ser Phe Lys Lys Leu Gln Lys Phe Tyr Ile Asp Pro Tyr	
134 139 144 149	
aag ctg ctg cca ctg cag agg ttt tta cct cga cct cca ggt gag aaa	773
Lys Leu Leu Pro Leu Gln Arg Phe Leu Pro Arg Pro Pro Gly Glu Lys	
150 155 160 165	
gga cct cca aga ggt ggt ggc agg gga ggc cga gga gga gga aga gga	821
Gly Pro Pro Arg Gly Gly Gly Arg Gly Gly Arg Gly Gly Gly Arg Gly	
166 171 176 181	
gga ggt ggc aga ggt ggt ggc aga ggc ggt ggt ttt aga ggt gga aga	869
Gly Gly Gly Arg Gly Gly Gly Arg Gly Gly Gly Phe Arg Gly Gly Arg	
182 187 192 197	
gga ggt gga ggt ggg ggc ttc aga gga gga aga ggt ggt ggt ttc aga	917
Gly Gly Gly Gly Gly Gly Phe Arg Gly Gly Arg Gly Gly Gly Phe Arg	
198 203 208 213	
ggg aga gga cat taa gtgaaacagt tgacagacat caccagttga cttctgcatt	972
Gly Arg Gly His *	
214	
aacctgcatg atctgtttct actatggatt ggaaacttgt ttcttgaaca agtcttgaag	1032
atcttggtca ttttatgaca atggatctaa aatgtcagca tcatgcaaag tgcaacggaa	1092
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Arg Ala Ala Gly Val Gly Leu Val Asp Cys His Cys His Leu Ser Ala	

2	7	12	17	
ccg gac ttt gac cgc gat ttg gat gat gtg ttg gag aaa gcc aag aag				151
Pro Asp Phe Asp Arg Asp Leu Asp Asp Val Leu Glu Lys Ala Lys Lys				
18	23	28	33	
gcc aat gtt gtg gcc ctt gtg gca gtt gcc gaa cat tca gga gaa ttt				199
Ala Asn Val Val Ala Leu Val Ala Val Ala Glu His Ser Gly Glu Phe				
34	39	44	49	
gaa aag att atg caa ctt tca gaa agg tat aat ggg ttt gtc ctg cca				247
Glu Lys Ile Met Gln Leu Ser Glu Arg Tyr Asn Gly Phe Val Leu Pro				
50	55	60	65	
tgc ttg ggt gtt cat cca gtt caa gga ctt cca cca gaa gac caa aga				295
Cys Leu Gly Val His Pro Val Gln Gly Leu Pro Pro Glu Asp Gln Arg				
66	71	76	81	
agt gtc aca cta aag gat ttg gat gta gct ttg ccc att att gag aat				343
Ser Val Thr Leu Lys Asp Leu Asp Val Ala Leu Pro Ile Ile Glu Asn				
82	87	92	97	
tat aag gat cgg ttg ttg gca att gga gag gtt gga cta gat ttc tcc				391
Tyr Lys Asp Arg Leu Leu Ala Ile Gly Glu Val Gly Leu Asp Phe Ser				
98	103	108	113	
ccc aga ttt gct ggc act ggt gaa cag aag gaa gag caa aga caa gtc				439
Pro Arg Phe Ala Gly Thr Gly Glu Gln Lys Glu Glu Gln Arg Gln Val				
114	119	124	129	
cta atc aga cag atc cag tta gcc aaa aga cta aat ttg cct gaa aat				487
Leu Ile Arg Gln Ile Gln Leu Ala Lys Arg Leu Asn Leu Pro Glu Asn				
130	135	140	145	
gcg cac tca cgc tct gct gga aga cct acc atc aac ctt tta caa gag				535
Ala His Ser Arg Ser Ala Gly Arg Pro Thr Ile Asn Leu Leu Gln Glu				
146	151	156	161	
caa ggt gct gag aag gta ctg ctg cat gca ttt gat ggt cgg cca tct				583
Gln Gly Ala Glu Lys Val Leu Leu His Ala Phe Asp Gly Arg Pro Ser				
162	167	172	177	
gta gcc atg gaa gga gta aga gct ggg tac ttc ttc tca att ccc cct				631
Val Ala Met Glu Gly Val Arg Ala Gly Tyr Phe Phe Ser Ile Pro Pro				
178	183	188	193	
tct atc ata aga agt gga cag cag aaa ctt gtg aaa caa ttg cct tta				679
Ser Ile Ile Arg Ser Gly Gln Gln Lys Leu Val Lys Gln Leu Pro Leu				
194	199	204	209	
act tct ata tgc tta gaa aca gat tca cct gca cta gga cca gaa aaa				727
Thr Ser Ile Cys Leu Glu Thr Asp Ser Pro Ala Leu Gly Pro Glu Lys				
210	215	220	225	
cag gta cgg aat gag ccc tgg aac att tct att tca gca gaa tat att				775
Gln Val Arg Asn Glu Pro Trp Asn Ile Ser Ile Ser Ala Glu Tyr Ile				
226	231	236	241	

gcc cag gtg aaa ggg atc tca gtg gaa gaa gtt ata gaa gtg acg aca 823  
Ala Gln Val Lys Gly Ile Ser Val Glu Glu Val Ile Glu Val Thr Thr  
242 247 252 257

cag aat gca tta aaa ctg ttt cct aag ctc cga cac ttg ctc cag aaa 871  
Gln Asn Ala Leu Lys Leu Phe Pro Lys Leu Arg His Leu Leu Gln Lys  
258 263 268 273

tag cttc aaaacccatcc attacaaaat cgaatcaact gcagggggca gcatttgaaa 928  
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274

aatagaaatg ttctgatgaa gaatctgaac tgaagaagct gttttatagg gttatagaag 988

attgtaattg tagagaaata tttctcttag aaataaaaact gggcttgat cctgaaaccc 1048

tgggttctga ttctagcctt gtgctgcttt tcaattagcc gagttctggc aggatattgg 1108

gaaaatactg ctacttctta cattgccctt ttatatagaa ccaccacctg aactgaaacc 1168

attgctactg ggaaggggtg ctccacagg aagagtataa gcaactactgt gatgaggatg 1228

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Met Trp Asn Cys Leu Ser Lys Ser Leu Gly  
1 5

ctc att gaa ggt tat ggt ggg cgg gga aaa ggg ggc ctt ccg gct act 159  
Leu Ile Glu Gly Tyr Gly Gly Arg Gly Lys Gly Gly Leu Pro Ala Thr  
11 16 21 26

ctt tcc ccg gct gaa gaa aaa aag gct aag gga ccc cat gag aag tat 207  
Leu Ser Pro Ala Glu Glu Lys Lys Ala Lys Gly Pro His Glu Lys Tyr  
27 32 37 42

ggc tac aat tca tac ctc agt gaa aaa att tca ctg gac cgt tcc att 255  
Gly Tyr Asn Ser Tyr Leu Ser Glu Lys Ile Ser Leu Asp Arg Ser Ile  
43 48 53 58

ccg gat tat cgc ccc acc aag tgt aag gag ctc aag tac tcc aag gac	303
Pro Asp Tyr Arg Pro Thr Lys Cys Lys Glu Leu Lys Tyr Ser Lys Asp	
59 64 69 74	
ctg ccc cag ata tcc atc ata ttc atc ttc gtg aac gag gcc ctg tcg	351
Leu Pro Gln Ile Ser Ile Ile Phe Ile Phe Val Asn Glu Ala Leu Ser	
75 80 85 90	
gtg atc ctg cgg tcc gtg cac agt gcc gtc aat cac acg ccc aca cac	399
Val Ile Leu Arg Ser Val His Ser Ala Val Asn His Thr Pro Thr His	
91 96 101 106	
ctg ctg aag gaa atc att ctg gtg gat gac aac agc gac gaa gag gag	447
Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Asn Ser Asp Glu Glu Glu	
107 112 117 122	
ctg aag gtc ccc cta gag gag tat gtc cac aaa cgc tac ccc ggg ctg	495
Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg Tyr Pro Gly Leu	
123 128 133 138	
gtg aag gtg gta aga aat cag aag agg gaa ggc ctg atc cgc gct cgc	543
Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu Ile Arg Ala Arg	
139 144 149 154	
att gag ggc tgg aag gtg gct acc ggg cag gtc act ggc ttc ttt gat	591
Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr Gly Phe Phe Asp	
155 160 165 170	
gcc cac gtg gaa ttc acc gct ggc tgg gct gag ccg gtt cta tcc cgc	639
Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro Val Leu Ser Arg	
171 176 181 186	
atc cag gaa aac cgg aag cgt gtg atc ctc ccc tcc att gac aac atc	687
Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser Ile Asp Asn Ile	
187 192 197 202	
aaa cag gac aac ttt gag gtg cag cgg tac gag aac tcg gcc cac ggg	735
Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn Ser Ala His Gly	
203 208 213 218	
tac agc tgg gag ctg tgg tgc atg tac atc agc ccc cca aaa gac tgg	783
Tyr Ser Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro Pro Lys Asp Trp	
219 224 229 234	
tgg gac gcc gga gac cct tct ctc ccc atc agg tct gtg gct ggg ctc	831
Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Ser Val Ala Gly Leu	
235 240 245 250	
aac gaa tat gta act tca cag atg agg aca agt gat tct tca gtg act	879
Asn Glu Tyr Val Thr Ser Gln Met Arg Thr Ser Asp Ser Ser Val Thr	
251 256 261 266	
tca aat gtc agc agc atg atg tga	903
Ser Asn Val Ser Ser Met Met *	
267 272	

[illegible]

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1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

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Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

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 catctgtgcg tgcagctgcc ttggccctct cagttgcccc cgccccgtgg gagtcggggg 180  
 attccatcct tcgtgatggc atccataccg ggttgagatt tgaagacctt gcttctcatc 240  
 acccactgga ttatgccccca ggctttccta ccca atg atc ctc ttg caa cac 292  
 Met Ile Leu Leu Gln His  
 1  
 gcc gtg ctt cct cca cct aag cag ccc tca ccc tcg cct cct atg tca 340  
 Ala Val Leu Pro Pro Pro Lys Gln Pro Ser Pro Ser Pro Pro Met Ser  
 7 12 17 22  
 gtg gcc acc agg tct aca gga acc ttg cag ctt cca cca cag aag cct 388  
 Val Ala Thr Arg Ser Thr Gly Thr Leu Gln Leu Pro Pro Gln Lys Pro  
 23 28 33 38  
 ttt ggg cag gag gct tcc ttg cct ctt gca ggg gaa gaa gag tta tcg 436  
 Phe Gly Gln Glu Ala Ser Leu Pro Leu Ala Gly Glu Glu Glu Leu Ser  
 39 44 49 54  
 aag gga ggg gag caa gac tgt gcc ctg gag gag cta tgt aag ccc ctg 484  
 Lys Gly Gly Glu Gln Asp Cys Ala Leu Glu Glu Leu Cys Lys Pro Leu  
 55 60 65 70  
 tac tgc aaa ctc tgc aat gtc acc ttg aac tct gca cag caa gcc cag 532  
 Tyr Cys Lys Leu Cys Asn Val Thr Leu Asn Ser Ala Gln Gln Ala Gln  
 71 76 81 86  
 gct cat tat cag ggt aaa aat cat ggt aag aaa ctc cga aat tac tat 580  
 Ala His Tyr Gln Gly Lys Asn His Gly Lys Lys Leu Arg Asn Tyr Tyr  
 87 92 97 102  
 gca gca aat agc tgt cct cct cct gct aga atg agc aat gtg gtc gag 628  
 Ala Ala Asn Ser Cys Pro Pro Pro Ala Arg Met Ser Asn Val Val Glu  
 103 108 113 118  
 cct gca gct act cca gtt gtt cca gtc cct ccg cag atg ggc tcc ttt 676  
 Pro Ala Ala Thr Pro Val Val Pro Val Pro Pro Gln Met Gly Ser Phe  
 119 124 129 134  
 aag cca gga ggc cga gtg atc ctg gcc acg gag aat gat tac tgt aag 724  
 Lys Pro Gly Gly Arg Val Ile Leu Ala Thr Glu Asn Asp Tyr Cys Lys



135	140	145	150	
ctc tgt gat gcc tcc ttc agt tcc cca gct gtg gct cag gct cac tat				772
Leu Cys Asp Ala Ser Phe Ser Ser Pro Ala Val Ala Gln Ala His Tyr				
151	156	161	166	
caa ggg aag aat cat gcc aag agg ctg cgg ctg gcg gaa gct cag agt				820
Gln Gly Lys Asn His Ala Lys Arg Leu Arg Leu Ala Glu Ala Gln Ser				
167	172	177	182	
aac tca ttc tcg gaa tcc tca gag ctg ggt caa cgg cgg gcc agg aaa				868
Asn Ser Phe Ser Glu Ser Ser Glu Leu Gly Gln Arg Arg Ala Arg Lys				
183	188	193	198	
gaa ggg aat gag ttt aag atg atg cct aac agg aga aat atg tat aca				916
Glu Gly Asn Glu Phe Lys Met Met Pro Asn Arg Arg Asn Met Tyr Thr				
199	204	209	214	
gta cag aat aat tca ggt cct tac ttc aat ccc cgc tct cgg cag aga				964
Val Gln Asn Asn Ser Gly Pro Tyr Phe Asn Pro Arg Ser Arg Gln Arg				
215	220	225	230	
att cca cgt gat ctg gcc atg tgt gtt act cca agt ggc cag ttt tac				1012
Ile Pro Arg Asp Leu Ala Met Cys Val Thr Pro Ser Gly Gln Phe Tyr				
231	236	241	246	
tgc tca atg tgt aat gtt gga gct ggc gaa gag atg gaa ttc cgg cag				1060
Cys Ser Met Cys Asn Val Gly Ala Gly Glu Glu Met Glu Phe Arg Gln				
247	252	257	262	
cat tta gag agc aag caa cat aag agc aag gtg tct gaa cag cgg tac				1108
His Leu Glu Ser Lys Gln His Lys Ser Lys Val Ser Glu Gln Arg Tyr				
263	268	273	278	
agg aat gag atg gag aat ctg gga tat gta tag tgattatc atattaagat				1159
Arg Asn Glu Met Glu Asn Leu Gly Tyr Val *				
279	284	289		
agagcagctt ttctgcctg ttgtttgcct tttgtcaact tgccctgctt tgtggtcttt				1219
ttgatatgag tac				1232

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gag aag ctg ggc aag tct gtg gtg gcc aaa gtg aaa att ccg gaa ggc 1030  
 Glu Lys Leu Gly Lys Ser Val Val Ala Lys Val Lys Ile Pro Glu Gly  
 290 295 300

acc att cta aca atg gac atg ctc acc gtg aag gtg ggt gag ccc aaa 1078  
 Thr Ile Leu Thr Met Asp Met Leu Thr Val Lys Val Gly Glu Pro Lys  
 305 310 315 320

ggc tat cct cct gaa gac atc ttt aat cta gtg ggc aag aag gtc ctg 1126  
 Gly Tyr Pro Pro Glu Asp Ile Phe Asn Leu Val Gly Lys Lys Val Leu  
 325 330 335

gtc act gtt gaa gag gat gac acc atc atg gaa gaa ttg gta gat aat 1174  
 Val Thr Val Glu Glu Asp Asp Thr Ile Met Glu Glu Leu Val Asp Asn  
 340 345 350

cat ggc aaa aaa atc aag tct taa aaataaagtg ccattctctg aaaaaaaaaa 1228  
 His Gly Lys Lys Ile Lys Ser  
 355

aa 1230

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 gccgcattccc tcccgcagcg acggcggccc gggacccgcg ggctgtgaac c atg aac 177  
 Met Asn  
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acc cgc aat aga gtg gtg aac tcc ggg ctc ggc gcc tcc cct gcc tcc 225  
 Thr Arg Asn Arg Val Val Asn Ser Gly Leu Gly Ala Ser Pro Ala Ser  
 5 10 15

cgc ccg acc cgg gat ccc cag gac cct tct ggg cgg caa ggg gag ctg 273  
 Arg Pro Thr Arg Asp Pro Gln Asp Pro Ser Gly Arg Gln Gly Glu Leu  
 20 25 30

agc ccc gtg gaa gac cag aga gag ggt ttg gag gca gcc cct aag ggc 321  
 Ser Pro Val Glu Asp Gln Arg Glu Gly Leu Glu Ala Ala Pro Lys Gly  
 35 40 45 50

cct tcg cgg gag agc gtc gtg cac gcg ggc cag agg cgc aca agt gca 369  
 Pro Ser Arg Glu Ser Val Val His Ala Gly Gln Arg Arg Thr Ser Ala  
 55 60 65

tac acc ttg ata gca cca aat ata aac cgg aga aat gag ata caa aga 417





aag agg tat gaa cag gag cat gct gct atc cag gat aag ctc ttc cag	401
Lys Arg Tyr Glu Gln Glu His Ala Ala Ile Gln Asp Lys Leu Phe Gln	
88 93 98 103	
gtg gca aag agg gaa aga gag gct gcc acc aag cac tcc aag gca tcc	449
Val Ala Lys Arg Glu Arg Glu Ala Ala Thr Lys His Ser Lys Ala Ser	
104 109 114 119	
ctg ccc acg ggc gaa ggc agc atc agc cat gag gag cag aag tca gtc	497
Leu Pro Thr Gly Glu Gly Ser Ile Ser His Glu Glu Gln Lys Ser Val	
120 125 130 135	
cgg ctg gcc agg gag ctg gag agc aga gag gca gag cta aga cgc cgt	545
Arg Leu Ala Arg Glu Leu Glu Ser Arg Glu Ala Glu Leu Arg Arg Arg	
136 141 146 151	
gac acc ttc tac aag gag cag ctg gag cgt att gag agg aag aat gct	593
Asp Thr Phe Tyr Lys Glu Gln Leu Glu Arg Ile Glu Arg Lys Asn Ala	
152 157 162 167	
gag atg tat aaa ctg tct tca gag caa ttc cat gag gca gcc tca aag	641
Glu Met Tyr Lys Leu Ser Ser Glu Gln Phe His Glu Ala Ala Ser Lys	
168 173 178 183	
atg gag agc aca ata aag ccc cgc agg gtg gag ccc gtc tgc tca ggg	689
Met Glu Ser Thr Ile Lys Pro Arg Arg Val Glu Pro Val Cys Ser Gly	
184 189 194 199	
ttg cag gcc cag att ctc cac tgc tac cga gat cgc ccg cat gag gtg	737
Leu Gln Ala Gln Ile Leu His Cys Tyr Arg Asp Arg Pro His Glu Val	
200 205 210 215	
ctg ctg tgc tgc gac ctg gtc aag gca tac cag cgc tgc gtg agc gcc	785
Leu Leu Cys Ser Asp Leu Val Lys Ala Tyr Gln Arg Cys Val Ser Ala	
216 221 226 231	
gcc cac aag ggc tga ggagcagaca tcattccctg ccctggcagt gacttggagc	840
Ala His Lys Gly *	
232	
cctgaagaag ggaccaatca tgggaccaca gccactgtgc cctgccgttt cctgctgggc	900
ccctgcatat gccctgagc ctggggctgc cacgtgttta ggaaacaaag tatgcgctac	960
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gcgctgaggg atctaaa     atg tcc act gag gca caa aga gtt gat gac agt	170
Met Ser Thr Glu Ala Gln Arg Val Asp Asp Ser	
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cca agc act agt gga gga agt tcc gat gga gat caa cgt gaa agt gtt	218
Pro Ser Thr Ser Gly Gly Ser Ser Asp Gly Asp Gln Arg Glu Ser Val	
12                              17                              22                              27	
cag caa gaa cca gaa aga gaa caa gtt cag ccc aag aaa aag gag gga	266
Gln Gln Glu Pro Glu Arg Glu Gln Val Gln Pro Lys Lys Lys Glu Gly	
28                              33                              38                              43	
aaa ata tcc agc aaa acc gct gct aaa ttg tca act agt gct aaa aga	314
Lys Ile Ser Ser Lys Thr Ala Ala Lys Leu Ser Thr Ser Ala Lys Arg	
44                              49                              54                              59	
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Ile Gln Lys Glu Leu Ala Glu Ile Thr Leu Asp Pro Pro Pro Asn Cys	
60                              65                              70                              75	
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Ser Ala Gly Pro Lys Gly Asp Asn Ile Tyr Glu Trp Arg Ser Thr Ile	
76                              81                              86                              91	
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Leu Gly Pro Pro Gly Ser Val Tyr Glu Gly Gly Val Phe Phe Leu Asp	
92                              97                              102                              107	
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Ile Thr Phe Ser Pro Asp Tyr Pro Phe Lys Pro Pro Lys Val Thr Phe	
108                              113                              118                              123	
cga aca aga atc tat cac tgt aat att aac agc caa ggt gtg atc tgt	554
Arg Thr Arg Ile Tyr His Cys Asn Ile Asn Ser Gln Gly Val Ile Cys	
124                              129                              134                              139	
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Leu Asp Ile Leu Lys Asp Asn Trp Ser Pro Ala Leu Thr Ile Ser Lys	
140                              145                              150                              155	
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Val Leu Leu Ser Ile Cys Ser Leu Leu Thr Asp Cys Asn Pro Ala Asp	
156                              161                              166                              171	
cct ctg gtg ggc agc atc gcc aca cag tac atg acc aac aga gca gag	698
Pro Leu Val Gly Ser Ile Ala Thr Gln Tyr Met Thr Asn Arg Ala Glu	
172                              177                              182                              187	
cat gac cgg atg gcc aga cag tgg acc aag cgg tac gcc aca tag ggg	746
His Asp Arg Met Ala Arg Gln Trp Thr Lys Arg Tyr Ala Thr *	

188

193

198

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&lt;211&gt; 1108

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

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&lt;222&gt; (172)..(771)

&lt;400&gt; 945

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 Met Pro

1

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Glu Gln Ser Asn Asp Tyr Arg Val Ala Val Phe Gly Ala Gly Gly Val	
3 8 13 18	
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Gly Lys Ser Ser Leu Val Leu Arg Phe Val Lys Gly Thr Phe Arg Glu	
19 24 29 34	
agc tac atc ccg acg gtg gaa gac acc tac cgg caa gtg atc agc tgt	321
Ser Tyr Ile Pro Thr Val Glu Asp Thr Tyr Arg Gln Val Ile Ser Cys	
35 40 45 50	
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Asp Lys Ser Ile Cys Thr Leu Gln Ile Thr Asp Thr Thr Gly Ser His	
51 56 61 66	
cag ttc ccg gcc atg cag cgg ctg tcc atc tcc aaa ggg cac gcc ttc	417
Gln Phe Pro Ala Met Gln Arg Leu Ser Ile Ser Lys Gly His Ala Phe	
67 72 77 82	
atc ctg gtg tac tcc att acc agc cga cag tcc ttg gag gag ctc aag	465
Ile Leu Val Tyr Ser Ile Thr Ser Arg Gln Ser Leu Glu Glu Leu Lys	
83 88 93 98	
ccc atc tac gaa caa atc tgc gag atc aaa ggg gac gtg gag agc atc	513
Pro Ile Tyr Glu Gln Ile Cys Glu Ile Lys Gly Asp Val Glu Ser Ile	
99 104 109 114	
ccc atc atg ctg gtg ggg aac aag tgt gat gag agc ccc agc cgc gag	561
Pro Ile Met Leu Val Gly Asn Lys Cys Asp Glu Ser Pro Ser Arg Glu	
115 120 125 130	
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Val Gln Ser Ser Glu Ala Glu Ala Leu Ala Arg Thr Trp Lys Cys Ala	
131 136 141 146	
ttc atg gag acc tca gcc aag ctc aac cat aac gtg aag gag ctt ttc	657
Phe Met Glu Thr Ser Ala Lys Leu Asn His Asn Val Lys Glu Leu Phe	
147 152 157 162	
cag gag ctg ctc aac ctg gag aag cgc agg acc gtg agt ctc cag atc	705
Gln Glu Leu Leu Asn Leu Glu Lys Arg Arg Thr Val Ser Leu Gln Ile	
163 168 173 178	
gac ggg aaa aag agc aag cag cag aaa agg aaa gag aag ctc aaa ggc	753
Asp Gly Lys Lys Ser Lys Gln Gln Lys Arg Lys Glu Lys Leu Lys Gly	
179 184 189 194	
aag tgc gtg atc atg tga agggccc ttctgtcgagg aggagcagct gtgtgtcccc	807
Lys Cys Val Ile Met *	
195 200	
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gtgttaaaca ttgcatttaa tcgagatgcg tcctattgtc cttaagaggg cgttttcacac	927
caccaacagt aagccaccca ctctggagtc acagaatctg ccaggcggtt caagtgaana	987



ccaacacact cagcatccct gggaactgag aggtgccagc aattgctgaa ggtggcgatg 1047  
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Arg Val Leu Val Arg Arg Cys Trp Gly Pro Pro Leu Ala His Gly Ala  
2 7 12 17

agg cgt ggg agg ccg agt ccc cag tgg cga gca ctg gcc cga ctc ggc 153  
Arg Arg Gly Arg Pro Ser Pro Gln Trp Arg Ala Leu Ala Arg Leu Gly  
18 23 28 33

tgg gag gac tgc cgg gac tcc aga gtc cgc gag aag cct ccc tgg cgg 201  
Trp Glu Asp Cys Arg Asp Ser Arg Val Arg Glu Lys Pro Pro Trp Arg  
34 39 44 49

gtg ctc ttc ttc ggc acg gac cag ttc gcc cgc gag gcg ctg cgg gcg 249  
Val Leu Phe Phe Gly Thr Asp Gln Phe Ala Arg Glu Ala Leu Arg Ala  
50 55 60 65

ctg cac gcc gcc agg gaa aac aaa gaa gaa gag tta atc gac aaa ctg 297  
Leu His Ala Ala Arg Glu Asn Lys Glu Glu Glu Leu Ile Asp Lys Leu  
66 71 76 81

gag gtg gtc aca atg cct tcc cca tca cca aaa gga ctg cca gtg aag 345  
Glu Val Val Thr Met Pro Ser Pro Ser Pro Lys Gly Leu Pro Val Lys  
82 87 92 97

caa tat gct gtg cag tct cag ctt ccc gta tat gag tgg ccg gat gtg 393  
Gln Tyr Ala Val Gln Ser Gln Leu Pro Val Tyr Glu Trp Pro Asp Val  
98 103 108 113

gga tct gga gaa tat gat gtt gga gta gtg gct tog ttt/ ggc cga ctt 441  
Gly Ser Gly Glu Tyr Asp Val Gly Val Val Ala Ser Phe Gly Arg Leu  
114 119 124 129

ttg aat gag gct ctt att ctt aaa ttt ccc tat ggc ata ttg aat gtt 489

Leu Asn Glu Ala Leu Ile Leu Lys Phe Pro Tyr Gly Ile Leu Asn Val	
130 135 140 145	
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His Pro Ser Cys Leu Pro Arg Trp Arg Gly Pro Ala Pro Val Ile His	
146 151 156 161	
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Thr Val Leu His Gly Asp Thr Val Thr Gly Val Thr Ile Met Gln Ile	
162 167 172 177	
aga cct aaa agg ttt gat gta ggc cca att ctc aaa caa gaa act gtt	633
Arg Pro Lys Arg Phe Asp Val Gly Pro Ile Leu Lys Gln Glu Thr Val	
178 183 188 193	
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Pro Val Pro Pro Lys Ser Thr Ala Lys Glu Leu Glu Ala Val Leu Ser	
194 199 204 209	
aga ctg ggt gcc aac atg ctc att tca gtt ttg aaa aat ttg cct gaa	729
Arg Leu Gly Ala Asn Met Leu Ile Ser Val Leu Lys Asn Leu Pro Glu	
210 215 220 225	
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Ser Leu Ser Asn Gly Arg Gln Gln Pro Met Glu Gly Ala Thr Tyr Ala	
226 231 236 241	
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Pro Lys Ile Ser Ala Gly Thr Ser Cys Ile Lys Trp Glu Glu Gln Thr	
242 247 252 257	
tca gaa caa ata ttc aga ctt tac cgt gcc att gga aat ata att ccg	873
Ser Glu Gln Ile Phe Arg Leu Tyr Arg Ala Ile Gly Asn Ile Ile Pro	
258 263 268 273	
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Leu Gln Thr Leu Trp Met Ala Asn Thr Ile Lys Leu Leu Asp Leu Val	
274 279 284 289	
gaa gtt aac agt tca gtc ctt gct gat cca aaa tta acg gga cag gct	969
Glu Val Asn Ser Ser Val Leu Ala Asp Pro Lys Leu Thr Gly Gln Ala	
290 295 300 305	
ctt att cca gga tca gta ata tac cac aaa cag tca caa ata cta ttg	1017
Leu Ile Pro Gly Ser Val Ile Tyr His Lys Gln Ser Gln Ile Leu Leu	
306 311 316 321	
gtt tat tgc aag gat ggt tgg att ggt gtt cga tca gtg atg ctc aag	1065
Val Tyr Cys Lys Asp Gly Trp Ile Gly Val Arg Ser Val Met Leu Lys	
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Lys Ser Leu Thr Ala Thr Asp Phe Tyr Asn Gly Tyr *	
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1193

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Gly Val Glu Tyr Val Pro Ala Cys Leu Val His Arg Arg Arg Arg Arg	
120 125 130 135	
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Glu Asp Gln Met Asp Gly Asp Gly Pro Arg Pro Arg Glu Ala Phe Trp	
136 141 146 151	
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Glu Pro Thr Ser Ser Asp Glu Gly Gly Ala Ala Ser Asp Asp Ser Met	
152 157 162 167	
aca gac ctg tac cca cct gag cta ttc acc aga aag gac ctt gga agc	1000
Thr Asp Leu Tyr Pro Pro Glu Leu Phe Thr Arg Lys Asp Leu Gly Ser	
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Thr Glu Asp Gly Asp Gly Thr Asp Asp Phe Leu Thr Asp Lys Glu Asp	
184 189 194 199	
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Glu Lys Ala Lys Pro Pro Arg Glu Lys Ala Thr Asp Glu Gly Arg Arg	
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Glu Thr Thr Val Tyr Arg Gly Leu Val Gln Lys Arg Gly Lys Lys Gln	
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Leu Gly Ser Leu Lys Lys Lys Phe Lys Ser His His Arg Lys Pro Lys	
232 237 242 247	
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cgcttcttcc ttctccgtgg cctacgaggg tctggatcct tctctgccgg ctctgtgggc	180
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Met Ala Pro Trp Pro Pro Lys Gly Leu Val Pro Ala Val Leu	
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Trp Gly Leu Ser Leu Phe Leu Asn Leu Pro Gly Pro Ile Trp Leu Gln	
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His Thr Cys Arg Gly Leu Val Asp Ser Phe Asn Lys Gly Leu Glu Arg	
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Thr Ile Arg Asp Asn Phe Gly Gly Gly Asn Thr Ala Trp Glu Glu Glu	
63 68 73 78	
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Asn Leu Ser Lys Tyr Lys Asp Ser Glu Thr Arg Leu Val Glu Val Leu	
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Glu Gly Val Cys Ser Lys Ser Asp Phe Glu Cys His Arg Leu Leu Glu	
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Ala Pro Asp Leu Phe Gln Trp Leu Cys Ser Asp Ser Leu Lys Leu Cys	
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Thr	Glu	Arg	Pro	Cys	Gly	Gly	Tyr	Gly	Gln	Cys	Glu	Gly	Glu	Gly	Thr		
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Ala	Cys	Gly	Gln	Cys	Gly	Leu	Gly	Tyr	Phe	Glu	Ala	Glu	Arg	Asn	Ala		
191					196					201					206		
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Ser	His	Leu	Val	Cys	Ser	Ala	Cys	Phe	Gly	Pro	Cys	Ala	Arg	Cys	Ser		
207					212					217					222		
gga	cct	gag	gaa	tca	aac	tgt	ttg	caa	tgc	aag	aag	ggc	tgg	gcc	ctg	1381	
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223					228					233					238		
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His	His	Leu	Lys	Cys	Val	Asp	Ile	Asp	Glu	Cys	Gly	Thr	Glu	Gly	Ala		
239					244					249					254		
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Asn	Cys	Gly	Ala	Asp	Gln	Phe	Cys	Val	Asn	Thr	Glu	Gly	Ser	Tyr	Glu		
255					260					265					270		
tgc	cga	gac	tgt	gcc	aag	ggc	tgc	cta	ggc	tgc	atg	ggg	gca	ggg	cca	1525	
Cys	Arg	Asp	Cys	Ala	Lys	Ala	Cys	Leu	Gly	Cys	Met	Gly	Ala	Gly	Pro		
271					276					281					286		
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Gly	Arg	Cys	Lys	Lys	Cys	Ser	Pro	Gly	Tyr	Gln	Gln	Val	Gly	Ser	Lys		
287					292					297					302		
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Cys	Leu	Asp	Val	Asp	Glu	Cys	Glu	Thr	Glu	Val	Cys	Pro	Gly	Glu	Asn		
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Lys	Gln	Cys	Glu	Asn	Thr	Glu	Gly	Gly	Tyr	Arg	Cys	Ile	Cys	Ala	Glu		
319					324					329					334		
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335					340					345					350		
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Ser	Ala	Gly	Phe	Phe	Ser	Glu	Met	Thr	Glu	Asp	Glu	Leu	Val	Val	Leu		
351					356					361					366		
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Gln	Gln	Met	Phe	Phe	Gly	Ile	Ile	Ile	Cys	Ala	Leu	Ala	Thr	Leu	Ala		

367	372	377	382	
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Ala Lys Gly Asp Leu	Val Phe Thr Ala Ile	Phe Ile Gly Ala Val	Ala	
383	388	393	398	
gcc atg act ggc tac	tgg ttg tca gag cgc	agt gac cgt gtg ctg gag		1909
Ala Met Thr Gly Tyr	Trp Leu Ser Glu Arg	Ser Asp Arg Val Leu	Glu	
399	404	409	414	
ggc ttc atc aag ggc	aga taa tc gcggccacca	cctgtaggac ctcctccac		1962
Gly Phe Ile Lys Gly	Arg *			
415	420			
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tttttgagag tggggtaagc	accctacct gccttacaga	gcagcccagg taccaggcc		2082
cgggcagaca aggcccctgg	ggtaaaaagt agccctgaag	gtggatacca tgagctcttc		2142
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ggctgctaga gctttggccc	ctgcttagga ttaggtggtc	ctcacagggg tggggccatc		2262
acagctccct cctgccagct	gcatgctgcc agttcctggt	ctgtgttcac cacatcccca		2322
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aaaaaaaa				2391

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ccaggactcc ctggtttaac	120
gcgcttcccc ccatgtccta	gctgccctcc ctgtggcgtg
agccttcggc ctggtgcgcc	180
ccgctgccct tcctggctgt	gactctggtg gggttccgaa
ggccccctta tgcccggcag	240
accctaccg acggcggcat	tacattctgg ggccacgagg
aggcactcat cgtttcgttc	300
caaccgccgc caacggccct	ggccctcgcg agctctggaa
ctacagaggt cgcacgcccg	360
ggcagtgagt gtgg atg	gct tgg cag gtg agc
ctg ctg gag ctg gag	gac
Met Ala Trp Gln Val	Ser Leu Leu Glu Leu
Glu Asp	410





[illegible]

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aacgacatct	accactgggt	ttcagctcct	agagcaacaa	ctgcagaatc	tccatgggtcc										180	
aaagtcctcc	agaaaagaga	agaaaggggt	gacggggaac	actcaatgtc	ggaacgttcc										240	
gaag	atg	acg	tcg	gag	cgt	tct	cga	atc	ccg	tgt	ctc	tcg	gct	gct	gct	289
Met	Thr	Ser	Glu	Arg	Ser	Arg	Ile	Pro	Cys	Leu	Ser	Ala	Ala	Ala	Ala	
1					5					10						
gcc	gaa	gga	aca	ggg	aaa	aag	caa	caa	gaa	gga	aga	gca	atg	gcg	aca	337
Ala	Glu	Gly	Thr	Gly	Lys	Lys	Gln	Gln	Glu	Gly	Arg	Ala	Met	Ala	Thr	
16					21					26					31	
ctg	gat	cgc	aaa	gtg	ccc	agt	ccg	gag	gcg	ttt	ctg	ggc	aaa	ccc	tgg	385
Leu	Asp	Arg	Lys	Val	Pro	Ser	Pro	Glu	Ala	Phe	Leu	Gly	Lys	Pro	Trp	
32					37					42					47	
tcc	tcc	tgg	atc	gac	gcc	gcc	aaa	tta	cac	tgc	tcc	gac	aat	gta	gat	433
Ser	Ser	Trp	Ile	Asp	Ala	Ala	Lys	Leu	His	Cys	Ser	Asp	Asn	Val	Asp	
48					53					58					63	
tta	gaa	gag	gct	gga	aaa	gag	ggt	gga	aaa	agc	agg	gag	ggt	atg	agg	481
Leu	Glu	Glu	Ala	Gly	Lys	Glu	Gly	Gly	Lys	Ser	Arg	Glu	Val	Met	Arg	
64					69					74					79	
ctt	aat	aaa	gaa	gca	tgg	aaa	tac	ggt	acc	tga	aatgggac	acactgagta				532
Leu	Asn	Lys	Glu	Ala	Trp	Lys	Tyr	Gly	Thr	*						

80

85

90

gatagggtcat cccagaccaa gatatgcaag agaagccaca acctgctgca attgggcatc 592  
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 gcgtgcgcgcg gggcgggggg gcggggcctc gcctgcacaa atgggggacga ggggggccccg 180  
 gcggccacaa ttctgcgcca aacttgaccg cgcgttctgc tgtaacgagc gggctcggag 240  
 gtctctccgc tgctgtc atg gtt ggt tcg cta aac tgc atc gtc gct gtg 290  
 Met Val Gly Ser Leu Asn Cys Ile Val Ala Val  
 1 5  
 tcc cag aac atg ggc atc ggc aag aac ggg gac ctg ccc tgg cca ccg 338  
 Ser Gln Asn Met Gly Ile Gly Lys Asn Gly Asp Leu Pro Trp Pro Pro  
 12 17 22 27  
 ctc agg aat gaa ttc aga tat ttc cag aga atg acc aca acc tct tca 386  
 Leu Arg Asn Glu Phe Arg Tyr Phe Gln Arg Met Thr Thr Thr Ser Ser  
 28 33 38 43  
 gta gaa ggt aaa cag aat ctg gtg att atg ggt aag aag acc tgg ttc 434  
 Val Glu Gly Lys Gln Asn Leu Val Ile Met Gly Lys Lys Thr Trp Phe  
 44 49 54 59  
 tcc att cct gag aag aat cga cct tta aag ggt aga att aat tta gtt 482  
 Ser Ile Pro Glu Lys Asn Arg Pro Leu Lys Gly Arg Ile Asn Leu Val  
 60 65 70 75  
 ctc agc aga gaa ctc aag gaa cct cca caa gga gct cat ttt ctt tcc 530  
 Leu Ser Arg Glu Leu Lys Glu Pro Pro Gln Gly Ala His Phe Leu Ser  
 76 81 86 91  
 aga agt cta gat gat gcc tta aaa ctt act gaa caa cca gaa tta gca 578  
 Arg Ser Leu Asp Asp Ala Leu Lys Leu Thr Glu Gln Pro Glu Leu Ala  
 92 97 102 107  
 aat aaa gta gac atg gtc tgg ata gtt ggt ggc agt tct gtt tat aag 626  
 Asn Lys Val Asp Met Val Trp Ile Val Gly Gly Ser Ser Val Tyr Lys

108	113	118	123	
gaa gcc atg aat cac cca ggc cat ctt aaa cta ttt gtg aca agg atc				674
Glu Ala Met Asn His Pro Gly His Leu Lys Leu Phe Val Thr Arg Ile				
124	129	134	139	
atg caa gac ttt gaa agt gac acg ttt ttt cca gaa att gat ttg gag				722
Met Gln Asp Phe Glu Ser Asp Thr Phe Phe Pro Glu Ile Asp Leu Glu				
140	145	150	155	
aaa tat aaa ctt ctg cca gaa tac cca ggt gtt ctc tct gat gtc cag				770
Lys Tyr Lys Leu Leu Pro Glu Tyr Pro Gly Val Leu Ser Asp Val Gln				
156	161	166	171	
gag gag aaa ggc att aag tac aaa ttt gaa gta tat gag aag aat gat				818
Glu Glu Lys Gly Ile Lys Tyr Lys Phe Glu Val Tyr Glu Lys Asn Asp				
172	177	182	187	
taa tatg aagggtgtttt ctagttaaag ttgttcccc tccctctgaa aaaagtatgt				875
*				
188				
atttttacat tagaaaagggt tttttgttga ctttagatct ataattatatt ctaagcaact				935
agtttttatt cccactact cttgtctcta tcagatacca tttatgagac attcttgcta				995
taactaagtg cttctccaag accccaactg agtccccagc acctgctaca gtgagctgcc				1055
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cgagg atg gcg gcg gag aac gag gcc agc cag gag agc gcc ctg ggc				167
Met Ala Ala Glu Asn Glu Ala Ser Gln Glu Ser Ala Leu Gly				
1	5	10		
gcc tac tcg cca gtg gac tac atg agc atc acc agc ttc ccg cgg ctg				215
Ala Tyr Ser Pro Val Asp Tyr Met Ser Ile Thr Ser Phe Pro Arg Leu				
15	20	25	30	

ccc gag gac gag ccg gcg ccc gcg gcc ccg ctg agg ggc cgc aag gac	263
Pro Glu Asp Glu Pro Ala Pro Ala Ala Pro Leu Arg Gly Arg Lys Asp	
31 36 41 46	
gag gac gcc ttt ctg gga gac ccc gac acc gac ccg gac tcc ttc ctg	311
Glu Asp Ala Phe Leu Gly Asp Pro Asp Thr Asp Pro Asp Ser Phe Leu	
47 52 57 62	
aag tct gca cgg ctg cag cgg ctg cca tcg tcg tcg tcg gag atg ggc	359
Lys Ser Ala Arg Leu Gln Arg Leu Pro Ser Ser Ser Ser Glu Met Gly	
63 68 73 78	
agc caa gac ggg tcg ccg cta cgc gag acg cgc aaa gac ccg ttc tcc	407
Ser Gln Asp Gly Ser Pro Leu Arg Glu Thr Arg Lys Asp Pro Phe Ser	
79 84 89 94	
gcc gca gcg gcc gag tgc tcc tgc cgc cag gat ggg ctc acg gtc atc	455
Ala Ala Ala Ala Glu Cys Ser Cys Arg Gln Asp Gly Leu Thr Val Ile	
95 100 105 110	
gtc acg gcc tgt ctc acc ttc gct acc ggt gtc acc gtg gcg ctg gtc	503
Val Thr Ala Cys Leu Thr Phe Ala Thr Gly Val Thr Val Ala Leu Val	
111 116 121 126	
atg cag atc tac ttc ggg gac ccc cag atc ttc cag cag ggt gcc gtg	551
Met Gln Ile Tyr Phe Gly Asp Pro Gln Ile Phe Gln Gln Gly Ala Val	
127 132 137 142	
gtg acc gat gct gcc cgc tgc act tca ctg ggc atc gag gtg ctc agt	599
Val Thr Asp Ala Ala Arg Cys Thr Ser Leu Gly Ile Glu Val Leu Ser	
143 148 153 158	
aaa cag gga tct tct gtg gac gca gcg gtg gca gca gcc ttg tgt ttg	647
Lys Gln Gly Ser Ser Val Asp Ala Ala Val Ala Ala Ala Leu Cys Leu	
159 164 169 174	
ggt atc gtg gct cca cac agt tct ggc ctg ggc ggt ggg ggc gtg atg	695
Gly Ile Val Ala Pro His Ser Ser Gly Leu Gly Gly Gly Gly Val Met	
175 180 185 190	
ctg gta cat gac atc cga cga aat gag agc cac cta att gat ttc cgg	743
Leu Val His Asp Ile Arg Arg Asn Glu Ser His Leu Ile Asp Phe Arg	
191 196 201 206	
gag tcc gca cca ggg gcc ctc agg gaa gag acc ctg caa aga tcc tgg	791
Glu Ser Ala Pro Gly Ala Leu Arg Glu Glu Thr Leu Gln Arg Ser Trp	
207 212 217 222	
gag acc aag cct ggg ctc ttg gtg ggg gtt ccc gga atg gtg aag ggg	839
Glu Thr Lys Pro Gly Leu Leu Val Gly Val Pro Gly Met Val Lys Gly	
223 228 233 238	
cta cat gaa gct cac cag ctc tat ggc agg ctg cca tgg tcc caa gtc	887
Leu His Glu Ala His Gln Leu Tyr Gly Arg Leu Pro Trp Ser Gln Val	
239 244 249 254	
ctg gcc ttt gca gca gct gtg gcc caa gat ggc ttc aac gtg act cat	935

Leu	Ala	Phe	Ala	Ala	Ala	Val	Ala	Gln	Asp	Gly	Phe	Asn	Val	Thr	His	
255					260					265					270	
gat	cta	gcc	cgt	gcc	ctg	gct	gaa	cag	ctg	cca	ccc	aac	atg	tcc	gag	983
Asp	Leu	Ala	Arg	Ala	Leu	Ala	Glu	Gln	Leu	Pro	Pro	Asn	Met	Ser	Glu	
271					276					281					286	
cgc	ttc	cgg	gag	acg	ttc	ctg	cca	tcg	ggc	cgc	ccg	cca	cta	cct	ggc	1031
Arg	Phe	Arg	Glu	Thr	Phe	Leu	Pro	Ser	Gly	Arg	Pro	Pro	Leu	Pro	Gly	
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tog	ttg	ctg	cat	cgg	ccc	gac	ctg	gct	gag	gtg	ctg	gat	gta	ctt	ggc	1079
Ser	Leu	Leu	His	Arg	Pro	Asp	Leu	Ala	Glu	Val	Leu	Asp	Val	Leu	Gly	
303					308					313					318	
acc	tcc	ggc	ccg	gct	gcc	ttc	tac	gca	ggg	ggc	aac	ctc	aca	ctg	gag	1127
Thr	Ser	Gly	Pro	Ala	Ala	Phe	Tyr	Ala	Gly	Gly	Asn	Leu	Thr	Leu	Glu	
319					324					329					334	
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Met	Val	Ala	Glu	Ala	Gln	His	Ala	Gly	Gly	Val	Ile	Thr	Glu	Glu	Asp	
335					340					345					350	
ttc	agc	aat	tac	agc	gcc	ctt	gtg	gag	aag	cct	gtg	tgt	ggc	gtg	tac	1223
Phe	Ser	Asn	Tyr	Ser	Ala	Leu	Val	Glu	Lys	Pro	Val	Cys	Gly	Val	Tyr	
351					356					361					366	
aga	ggc	cac	ctg	gtt	ctt	agt	ccc	cca	cct	ccg	cac	acg	ggc	cct	gcc	1271
Arg	Gly	His	Leu	Val	Leu	Ser	Pro	Pro	Pro	Pro	His	Thr	Gly	Pro	Ala	
367					372					377					382	
ctc	atc	agt	gct	ctc	aac	atc	ctg	gag	ggc	ttc	aat	ctc	acc	agc	ctg	1319
Leu	Ile	Ser	Ala	Leu	Asn	Ile	Leu	Glu	Gly	Phe	Asn	Leu	Thr	Ser	Leu	
383					388					393					398	
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Val	Ser	Arg	Glu	Gln	Ala	Leu	His	Trp	Val	Ala	Glu	Thr	Leu	Lys	Ile	
399					404					409					414	
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Ala	Leu	Ala	Leu	Ala	Ser	Arg	Leu	Gly	Asp	Pro	Val	Tyr	Asp	Ser	Thr	
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Ile	Thr	Glu	Ser	Met	Asp	Asp	Met	Leu	Ser	Lys	Val	Glu	Ala	Ala	Tyr	
431					436					441					446	
ctc	cgg	ggc	cat	atc	aat	gac	tcc	cag	gca	gcc	cct	gcc	cca	ctc	ctg	1511
Leu	Arg	Gly	His	Ile	Asn	Asp	Ser	Gln	Ala	Ala	Pro	Ala	Pro	Leu	Leu	
447					452					457					462	
cct	gtc	tat	gaa	cta	gac	gga	gct	ccc	acg	gct	gcc	cag	gtg	ctg	atc	1559
Pro	Val	Tyr	Glu	Leu	Asp	Gly	Ala	Pro	Thr	Ala	Ala	Gln	Val	Leu	Ile	
463					468					473					478	
atg	gga	cct	gat	gac	ttc	att	gtg	gcc	atg	gtt	agc	tcc	ctg	aac	cag	1607
Met	Gly	Pro	Asp	Asp	Phe	Ile	Val	Ala	Met	Val	Ser	Ser	Leu	Asn	Gln	

479	484	489	494	
ccc ttt ggc agc ggc ctt atc acc ccc tcg ggg atc ctg ctc aac agc				1655
Pro Phe Gly Ser Gly Leu Ile Thr Pro Ser Gly Ile Leu Leu Asn Ser				
495	500	505	510	
cag atg ctg gac ttc tcc tgg ccc aac cgg aca gct aac cac tct gca				1703
Gln Met Leu Asp Phe Ser Trp Pro Asn Arg Thr Ala Asn His Ser Ala				
511	516	521	526	
ccc agc ctg gag aat tca gtg cag cca ggg aag cgg cca ctc tct ttc				1751
Pro Ser Leu Glu Asn Ser Val Gln Pro Gly Lys Arg Pro Leu Ser Phe				
527	532	537	542	
ctg ctg ccc aca gtg gtc cga ccc gcg gag ggg ctc tgt gga acc tac				1799
Leu Leu Pro Thr Val Val Arg Pro Ala Glu Gly Leu Cys Gly Thr Tyr				
543	548	553	558	
ctc gct ctg ggg gcc aat gga gct gcg cgg ggc ctc agc ggc ctg aca				1847
Leu Ala Leu Gly Ala Asn Gly Ala Ala Arg Gly Leu Ser Gly Leu Thr				
559	564	569	574	
cag gtt ctg ctg aat gtc ctg acc ttg aac cgg aac ctg agt gac agc				1895
Gln Val Leu Leu Asn Val Leu Thr Leu Asn Arg Asn Leu Ser Asp Ser				
575	580	585	590	
ctg gcc cgc ggc cgc cta cac ccg gac ctg cag tcc aac ctc ctg cag				1943
Leu Ala Arg Gly Arg Leu His Pro Asp Leu Gln Ser Asn Leu Leu Gln				
591	596	601	606	
gtg gac agt gag ttc aca gag gaa gag att gag ttc ctg gaa gcc agg				1991
Val Asp Ser Glu Phe Thr Glu Glu Glu Ile Glu Phe Leu Glu Ala Arg				
607	612	617	622	
ggt cac cac gtg gag aaa gta gat gtc tta tcc tgg gtc cat ggc agc				2039
Gly His His Val Glu Lys Val Asp Val Leu Ser Trp Val His Gly Ser				
623	628	633	638	
cga agg acc aac aac ttc atc atc gct gtt aag gac cct cgg agc cca				2087
Arg Arg Thr Asn Asn Phe Ile Ile Ala Val Lys Asp Pro Arg Ser Pro				
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Asp Ala Ala Gly Ala Thr Ile Leu *				
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Met Gly Arg Ala Gly Ala Ala Ala Asn Gly Thr Pro	
1 5 10	
cag aac gtc cag ggc atc acc tcc tac cag cag cgt tta caa gca ttg	158
Gln Asn Val Gln Gly Ile Thr Ser Tyr Gln Gln Arg Leu Gln Ala Leu	
13 18 23 28	
aga aag gag aaa tcc cga gat gct gct cgc tcc cgc cgg gga aaa gaa	206
Arg Lys Glu Lys Ser Arg Asp Ala Ala Arg Ser Arg Arg Gly Lys Glu	
29 34 39 44	
aac ttt gag ttc tat gaa ttg gcc aag ttg ttg cct ctt cct gca gcc	254
Asn Phe Glu Phe Tyr Glu Leu Ala Lys Leu Leu Pro Leu Pro Ala Ala	
45 50 55 60	
att acc agc cag ctc gac aag gca tcc atc att cga ctt aca att agc	302
Ile Thr Ser Gln Leu Asp Lys Ala Ser Ile Ile Arg Leu Thr Ile Ser	
61 66 71 76	
tat ctg aaa atg agg gac ttt gct aac cag ggg gac cct ccg tgg aac	350
Tyr Leu Lys Met Arg Asp Phe Ala Asn Gln Gly Asp Pro Pro Trp Asn	
77 82 87 92	
ttg cga atg gaa ggc cct cca cct aac aca tca gta aaa gtt ata ggt	398
Leu Arg Met Glu Gly Pro Pro Pro Asn Thr Ser Val Lys Val Ile Gly	
93 98 103 108	
gca cag cga agg aga agc ccc agt gca cta gcc att gaa gta ttt gaa	446
Ala Gln Arg Arg Arg Ser Pro Ser Ala Leu Ala Ile Glu Val Phe Glu	
109 114 119 124	
gca cat ttg gga agc cac att ttg cag tcc ctg gat ggc ttt gta ttt	494
Ala His Leu Gly Ser His Ile Leu Gln Ser Leu Asp Gly Phe Val Phe	
125 130 135 140	
gca cta aat cag gaa gga aaa ttt ttg tac att tcc gaa aca gtc tcc	542
Ala Leu Asn Gln Glu Gly Lys Phe Leu Tyr Ile Ser Glu Thr Val Ser	
141 146 151 156	
atc tac cta ggc ctc tca caa gtg gag ctg aca ggc agc agt gtc ttt	590
Ile Tyr Leu Gly Leu Ser Gln Val Glu Leu Thr Gly Ser Ser Val Phe	
157 162 167 172	
gac tat gtc cac ccc gga gat cac gtg gag atg gct gag cag ctg ggc	638
Asp Tyr Val His Pro Gly Asp His Val Glu Met Ala Glu Gln Leu Gly	
173 178 183 188	
atg aag ctc ccc cct ggg cgg ggt ctc ctg tca cag ggc act gct gag	686
Met Lys Leu Pro Pro Gly Arg Gly Leu Leu Ser Gln Gly Thr Ala Glu	
189 194 199 204	





53	58	63	68	
atc ttt gat atg gct gga cat ccc ttc ttc tat gag gta aga aag cct				354
Ile Phe Asp Met Ala Gly His Pro Phe Phe Tyr Glu Val Arg Lys Pro				
69	74	79	84	
ttt tga caaaacctat atccagtatt gttggtggtt tggggagaga tccagaatta				410
Phe *				
85				
tatgaaacaa ccaatattga tatcatgtgt aaaattgcat aatttttagct tgatcgtggc				470
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agtggtagga aatttcattg ccaatatttc aaacatttca ataagacatt ttgactttca				590
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Met Tyr Val Arg Gln Thr Val Leu Lys Val Ile Lys Phe Leu	
1 5 10	
atc atc att gca tat aat agt gct ctg gtt tcc aag gtc cag ttt aca	158
Ile Ile Ile Ala Tyr Asn Ser Ala Leu Val Ser Lys Val Gln Phe Thr	
15 20 25 30	
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Val Asp Cys Asn Val Asp Ile Gln Asp Met Thr Gly Tyr Lys Asn Phe	
31 36 41 46	
tct tgc aat cat acc atg gca cac ttg ttc tca aaa ctg tcc ttt tgc	254
Ser Cys Asn His Thr Met Ala His Leu Phe Ser Lys Leu Ser Phe Cys	
47 52 57 62	
tat ctg tgc ttt gtt agt atc tat gga ttg acg tgc ctt tat acc tta	302
Tyr Leu Cys Phe Val Ser Ile Tyr Gly Leu Thr Cys Leu Tyr Thr Leu	
63 68 73 78	
tac tgg ctg ttc tac cgt tct cta cgg gaa tat tcc ttt gag tat gtc	350
Tyr Trp Leu Phe Tyr Arg Ser Leu Arg Glu Tyr Ser Phe Glu Tyr Val	
79 84 89 94	

cg	t	cag	gag	act	gga	ttt	gat	gat	att	cca	gat	gtg	aaa	aat	gac	ttt	398
Arg	Gln	Glu	Thr	Gly	Phe	Asp	Asp	Ile	Pro	Asp	Val	Lys	Asn	Asp	Phe		
95					100					105					110		
gct	ttt	atg	ctt	cat	atg	ata	gat	cag	tat	gac	cct	ctc	tat	tcc	aag	446	
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Gln	Thr	Asn	Ala	His	Asn	Arg	Leu	Glu	Leu	Pro	Leu	Ile	Met	Leu	Ser		
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Ile Glu Glu Ile Val Ser Phe Gln His Leu Arg Lys Leu Thr Val Leu	
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Ser Tyr Asn Asp Ile Arg Phe Ile Pro Pro Glu Ile Gly Val Leu Gln	
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agt tta cag tat ttt tcc atc aca tgt aac aaa gtg gaa agc ctt cca	1454
Ser Leu Gln Tyr Phe Ser Ile Thr Cys Asn Lys Val Glu Ser Leu Pro	
447 452 457 462	
gat gaa ctc tac ttc tgc aag aaa ctt aaa act ctg aag att gga aaa	1502
Asp Glu Leu Tyr Phe Cys Lys Lys Leu Lys Thr Leu Lys Ile Gly Lys	
463 468 473 478	
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Asn Ser Leu Ser Val Leu Ser Pro Lys Ile Gly Asn Leu Leu Phe Leu	
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Ser Tyr Leu Asp Val Lys Gly Asn His Phe Glu Ile Leu Pro Pro Glu	
495 500 505 510	
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Leu Gly Asp Cys Arg Ala Leu Lys Arg Ala Gly Leu Val Val Glu Asp	
511 516 521 526	
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Ala Leu Phe Glu Thr Leu Pro Ser Asp Val Arg Glu Gln Met Lys Thr	
527 532 537 542	
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Glu *	

543

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 gcccttcgcg agcggggctc tccgtctgcg gtcccttggt aaggctctgg gcggctgcag 360  
 aggccggccg tccggtttgg ctcacctctc ccaggaaact tcacactgga gagccaaaag 420  
 gagtggaaga gcctgtcttg gagattttcc tggggaaatc ctgaggtcat tcatt atg 478  
 Met  
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aag tgt acc gcg cgg gag tgg ctc aga gta acc aca gtg ctg ttc atg 526  
 Lys Cys Thr Ala Arg Glu Trp Leu Arg Val Thr Thr Val Leu Phe Met  
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gct aga gca att cca gcc atg gtg gtt ccc aat gcc act tta ttg gag 574  
 Ala Arg Ala Ile Pro Ala Met Val Val Pro Asn Ala Thr Leu Leu Glu  
 18 23 28 33

aaa ctt ttg gaa aaa tac atg gat gag gat ggt gag tgg tgg ata gcc 622  
 Lys Leu Leu Glu Lys Tyr Met Asp Glu Asp Gly Glu Trp Trp Ile Ala  
 34 39 44 49

aaa caa cga ggg aaa agg gcc atc aca gac aat gac atg cag agt att 670  
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ttg gac ctt cat aat aaa tta cga agt cag gtg tat cca aca gcc tct 718  
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82	87	92	97	
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Ser Trp Ala Glu Ser Cys Leu Trp Glu His Gly Pro Ala Ser Leu Leu				
98	103	108	113	
cca tca att gga cag aat ttg gga gca cac tgg gga aga tat agg ccc				862
Pro Ser Ile Gly Gln Asn Leu Gly Ala His Trp Gly Arg Tyr Arg Pro				
114	119	124	129	
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Pro Thr Phe His Val Gln Ser Trp Tyr Asp Glu Val Lys Asp Phe Ser				
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Tyr Pro Tyr Glu His Glu Cys Asn Pro Tyr Cys Pro Phe Arg Cys Ser				
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ggc cct gta tgt aca cat tat aca cag gtc gtg tgg gca act agt aac				1006
Gly Pro Val Cys Thr His Tyr Thr Gln Val Val Trp Ala Thr Ser Asn				
162	167	172	177	
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Arg Ile Gly Cys Ala Ile Asn Leu Cys His Asn Met Asn Ile Trp Gly				
178	183	188	193	
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Gln Ile Trp Pro Lys Ala Val Tyr Leu Val Cys Asn Tyr Ser Pro Lys				
194	199	204	209	
gga aac tgg tgg ggc cat gcc cct tac aaa cat ggg cgg ccc tgt tct				1150
Gly Asn Trp Trp Gly His Ala Pro Tyr Lys His Gly Arg Pro Cys Ser				
210	215	220	225	
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Ala Cys Pro Pro Ser Phe Gly Gly Gly Cys Arg Glu Asn Leu Cys Tyr				
226	231	236	241	
aaa gaa ggg tca gac agg tat tat ccc cct cga gaa gag gaa aca aat				1246
Lys Glu Gly Ser Asp Arg Tyr Tyr Pro Pro Arg Glu Glu Glu Thr Asn				
242	247	252	257	
gaa ata gaa cga cag cag tca caa gtc cat gac acc cat gtc cgg aca				1294
Glu Ile Glu Arg Gln Gln Ser Gln Val His Asp Thr His Val Arg Thr				
258	263	268	273	
aga tca gat gat agt agc aga aat gaa gtc att agc ttt ggg aaa agt				1342
Arg Ser Asp Asp Ser Ser Arg Asn Glu Val Ile Ser Phe Gly Lys Ser				
274	279	284	289	
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Asn Glu Asn Ile Met Val Leu Glu Ile Leu Cys *				
290	295	300		

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cctgggatcg	ccgtccgccg	ctgctaccgc	gc	atg	tcg	gcg	gag	gcc	tcg	ggc						233
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Pro	Ala	Ala	Ala	Ala	Ala	Pro	Ser	Leu	Glu	Ala	Pro	Lys	Pro	Ser	Gly	
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Leu	Glu	Pro	Gly	Pro	Ala	Ala	Tyr	Gly	Leu	Lys	Pro	Leu	Thr	Pro	Asn	
24					29					34					39	
agc	aaa	tac	gtg	aag	ctg	aac	gtg	ggc	ggc	tcg	ttg	cac	tac	acc	acg	377
Ser	Lys	Tyr	Val	Lys	Leu	Asn	Val	Gly	Gly	Ser	Leu	His	Tyr	Thr	Thr	
40					45					50					55	
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56					61					66					71	
ggc	cgc	gtg	gag	gtg	ctg	acc	gat	gcc	gga	ggt	tgg	gtg	ctg	att	gac	473
Gly	Arg	Val	Glu	Val	Leu	Thr	Asp	Ala	Gly	Gly	Trp	Val	Leu	Ile	Asp	
72					77					82					87	
cgg	agc	ggc	cgt	cac	ttt	ggt	aca	atc	ctc	aat	tac	ctg	cgg	gat	ggg	521
Arg	Ser	Gly	Arg	His	Phe	Gly	Thr	Ile	Leu	Asn	Tyr	Leu	Arg	Asp	Gly	
88					93					98					103	
tct	gtg	cca	ctg	ccg	gag	agt	acg	aga	gaa	ctg	ggg	gag	ctg	ctg	ggc	569
Ser	Val	Pro	Leu	Pro	Glu	Ser	Thr	Arg	Glu	Leu	Gly	Glu	Leu	Leu	Gly	
104					109					114					119	
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Met	Val	Thr	Ser	Pro	Arg	Glu	Glu	Gln	Gln	Leu	Leu	Ala	Ser	Thr	Ser		
152					157					162					167		
aag	ccc	gtg	gtg	aag	ctc	ctg	cac	aac	cgc	agt	aac	aac	aag	tac	tcc	761	
Lys	Pro	Val	Val	Lys	Leu	Leu	His	Asn	Arg	Ser	Asn	Asn	Lys	Tyr	Ser		
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Tyr	Thr	Ser	Thr	Ser	Asp	Asp	Asn	Leu	Leu	Lys	Asn	Ile	Glu	Leu	Phe		
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264					269					274					279		
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Glu	Asp	Glu	Glu	Asn	Arg	Glu	His	Arg	Val	Arg	Arg	Ile	His	Val	Arg		
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Arg	His	Ile	Thr	His	Asp	Glu	Arg	Pro	His	Gly	Gln	Gln	Ile	Val	Phe		
312					317					322					327		
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Lys	Asp	*															
328																	
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gcc tta aca aca att ctt gac tgt tgg gat cca gtt gat gaa aca cac 692  
Ala Leu Thr Thr Ile Leu Asp Cys Trp Asp Pro Val Asp Glu Thr His



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Gln Glu Leu Asp Glu Val Ser Leu Leu Thr Ala Ile Thr Val Phe Ile				
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ttg tct acc agt cca gaa gta act acc atc cca tgc ctt cag aag cgc				788
Leu Ser Thr Ser Pro Glu Val Thr Thr Ile Pro Cys Leu Gln Lys Arg				
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Cys Ile Asp Lys Phe Lys Ala Thr Leu Glu Ile Lys Asp Pro Val Val				
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Gln Ile Lys Thr Tyr Gln Leu Leu His Ser Ile Phe Gln Tyr Pro Asn				
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cca gct gtt tcc tac cca tac att tac tct tta gca tcc tgt atc atg				932
Pro Ala Val Ser Tyr Pro Tyr Ile Tyr Ser Leu Ala Ser Cys Ile Met				
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Glu Lys Leu Gln Glu Ile Asp Lys Arg Lys Pro Glu Asn Thr Ala Glu				
114	119	124	129	
ctt gag atc ttc caa gaa ggc ata aag gtc tta gaa aca ctg gtt act				1028
Leu Glu Ile Phe Gln Glu Gly Ile Lys Val Leu Glu Thr Leu Val Thr				
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146	151	156	161	
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Ile Leu Ile Ser Phe Leu Leu Asp Glu Asn Ser Leu Gly Ser Ala Thr				
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Ser Ile Met Arg Asn Leu His Asp Phe Ala Leu Gln Asn Leu Met Gln				
178	183	188	193	
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Ile Gly Pro Gln Tyr Ser Ser Val Phe Lys Ser Leu Val Ala Ser Ser				
194	199	204	209	
cca gcc cta aaa gcc cgc ctt gag gct gct ata aag ggc aat cag gaa				1268
Pro Ala Leu Lys Ala Arg Leu Glu Ala Ala Ile Lys Gly Asn Gln Glu				
210	215	220	225	
agt gtc aaa gtc aag ata cca aca tct aaa tat act aag agt cct gga				1316
Ser Val Lys Val Lys Ile Pro Thr Ser Lys Tyr Thr Lys Ser Pro Gly				
226	231	236	241	
aaa aac tca agc atc caa tta aag acc agt ttc ctc tga tttttttttt				1365
Lys Asn Ser Ser Ile Gln Leu Lys Thr Ser Phe Leu *				
242	247	252		

ggaatagtaa gcaccttaat ataataaata cttgatcatt gcctttggtg acaaaaggga 1425  
 cattgtagac acaagtgcc ttagaggctt agttgattgt ttaccttaa atagctgtga 1485  
 ctcttcaaag taacagcata cttaacattt ttgtgtgtgt gcgtggggtt tgtgttttgt 1545  
 tttgttttgt ttttctattt aaaaagacaa tggagctaac ttgccaggaa ttttaagaaa 1605  
 gtgctaaaga actaaactta ctaaacaatc cactgcttta aaaatgaaat gaatttcttc 1665  
 taacagtcca tacatatgtg gtataactta tactgtgaca gatataaata tgactctagt 1725  
 gttaaattatc tgcactaata ttgtatccca attgctgatt taaaattctg ctttggcccg 1785  
 gcacagtggc tcatccctgt aattccagca ctttgggaagg ccaaggcggg cggatcacga 1845  
 ggtcgggagt ttgagaccag cctgaccaac atggtgaaac cccgtctcta ctaaaaatac 1905  
 aaaaattagc cgggtgtggt ggacacacc tgtaatccca gctactcagg aggccgaggc 1965  
 aggaaaatcg cttgaacctg gcaggcagag gttgcagtga gccagattg tgccactgca 2025  
 ctccagcctg ggcgacagag tgagactcca tctaaaaaaa aaaaa 2070

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 <222> (124) .. (699)

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 gatggcgagg ccccgagcg ctccccgcc tgcaagccga gctacgacct cacgggcaag 120  
 gtg atg ctt ctg gga gac aca ggc gtc ggc aaa aca tgt ttc ctg atc 168  
 Met Leu Leu Gly Asp Thr Gly Val Gly Lys Thr Cys Phe Leu Ile  
 1 5 10  
 caa ttc aaa gac ggg gcc ttc ctg tcc gga acc ttc ata gcc acc gtc 216  
 Gln Phe Lys Asp Gly Ala Phe Leu Ser Gly Thr Phe Ile Ala Thr Val  
 16 21 26 31  
 ggc ata gac ttc agg aac aag gtg gtg act gtg gat ggc gtg aga gtg 264  
 Gly Ile Asp Phe Arg Asn Lys Val Val Thr Val Asp Gly Val Arg Val  
 32 37 42 47  
 aag ctg cag atc tgg gac acc gct ggg cag gaa cgg ttc cga agc gtc 312  
 Lys Leu Gln Ile Trp Asp Thr Ala Gly Gln Glu Arg Phe Arg Ser Val  
 48 53 58 63

acc cat gct tat tac aga gat gct cag gcc ttg ctt ctg ctg tat gac	360
Thr His Ala Tyr Tyr Arg Asp Ala Gln Ala Leu Leu Leu Tyr Asp	
64 69 74 79	
atc acc aac aaa tct tct ttc gac aac atc agg gcc tgg ctc act gag	408
Ile Thr Asn Lys Ser Ser Phe Asp Asn Ile Arg Ala Trp Leu Thr Glu	
80 85 90 95	
att cat gag tat gcc cag agg gac gtg gtg atc atg ctg cta ggc aac	456
Ile His Glu Tyr Ala Gln Arg Asp Val Val Ile Met Leu Leu Gly Asn	
96 101 106 111	
aag gcg gat atg agc agc gaa aga gtg atc cgt tcc gaa gac gga gag	504
Lys Ala Asp Met Ser Ser Glu Arg Val Ile Arg Ser Glu Asp Gly Glu	
112 117 122 127	
acc ttg gcc agg gag tac ggt gtt ccc ttc ctg gag acc agc gcc aag	552
Thr Leu Ala Arg Glu Tyr Gly Val Pro Phe Leu Glu Thr Ser Ala Lys	
128 133 138 143	
act ggc atg aat gtg gag tta gcc ttt ctg gcc atc gcc aag gaa ctg	600
Thr Gly Met Asn Val Glu Leu Ala Phe Leu Ala Ile Ala Lys Glu Leu	
144 149 154 159	
aaa tac cgg gcc ggg cat cag gcg gat gag ccc agc ttc cag atc cga	648
Lys Tyr Arg Ala Gly His Gln Ala Asp Glu Pro Ser Phe Gln Ile Arg	
160 165 170 175	
gac tat gta gag tcc cag aag aag cgc tcc agc tgc tgc tcc ttc atg	696
Asp Tyr Val Glu Ser Gln Lys Lys Arg Ser Ser Cys Cys Ser Phe Met	
176 181 186 191	
tga atcc cagggggcag agaggaggct ctggaggcac acaggatgca gccttcccc	753
* 192	
tcccaggcct ggcttattcc aagaggctga gccaatgggg agaaagatgg aggactcact	813
gcacagccgc ttctagcag ggagctatac tccaactcct acttgagtgc ctgoggtctc	873
cccgcatacca caggagggtt aaaacactta gcttttattt taatagtaca taatttaata	933
ccaaaaaagg cgctggatc ccaaaaaaac cgaggctggg agctagtggc ccttttgctt	993
tctaggactt ggggggcccgc cctccctcc taagcataac aaagggtgggg ttgctccagc	1053
tcagccccag gggacacaga tgcactttgg gggtgagggc aggtaatgac tcc	1106

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<400> 960

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 Met Ala Ala Glu Lys Gln Val Pro Gly Gly Gly Gly Gly Gly Gly Ser  
 1 5 10

ggc ggc ggc ggt ggc agt ggc ggc ggc ggt agc ggc ggt gga cgt ggt 96  
 Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Arg Gly  
 17 22 27 32

gcc gga ggg gaa gaa aat aaa gaa aac gaa cgc cct tcg gcc gga tcg 144  
 Ala Gly Gly Glu Glu Asn Lys Glu Asn Glu Arg Pro Ser Ala Gly Ser  
 33 38 43 48

aag gca aac aaa gaa ttt ggg gat agc ctg agt ttg gag att ctt cag 192  
 Lys Ala Asn Lys Glu Phe Gly Asp Ser Leu Ser Leu Glu Ile Leu Gln  
 49 54 59 64

att att aag gaa tcc cag cag cag cat ggt tta cgg cat gga gat ttt 240  
 Ile Ile Lys Glu Ser Gln Gln Gln His Gly Leu Arg His Gly Asp Phe  
 65 70 75 80

cag agg tac agg ggc tac tgt tcc cgt aga caa aga cgt ctt cga aaa 288  
 Gln Arg Tyr Arg Gly Tyr Cys Ser Arg Arg Gln Arg Arg Leu Arg Lys  
 81 86 91 96

aca ctc aac ttc aag atg ggt aac aga cac aaa ttc aca ggg aag aaa 336  
 Thr Leu Asn Phe Lys Met Gly Asn Arg His Lys Phe Thr Gly Lys Lys  
 97 102 107 112

gtg act gaa gag ctt ctg acc gat aat aga tac ttg ctt ctg gtt ctg 384  
 Val Thr Glu Glu Leu Leu Thr Asp Asn Arg Tyr Leu Leu Leu Val Leu  
 113 118 123 128

atg gat gct gaa aga gcc tgg agc tac gcc atg cag ctg aaa cag gaa 432  
 Met Asp Ala Glu Arg Ala Trp Ser Tyr Ala Met Gln Leu Lys Gln Glu  
 129 134 139 144

gcc aac act gaa ccc cga aaa cgg ttt cac ttg tta tct cgc cta cgc 480  
 Ala Asn Thr Glu Pro Arg Lys Arg Phe His Leu Leu Ser Arg Leu Arg  
 145 150 155 160

aaa gcc gtg aag cat gca gag gaa ttg gaa cgc ttg tgt gag agc aat 528  
 Lys Ala Val Lys His Ala Glu Glu Leu Glu Arg Leu Cys Glu Ser Asn  
 161 166 171 176

cgc gtg gat gcc aag acc aaa tta gag gct cag gct tac aca gct tac 576  
 Arg Val Asp Ala Lys Thr Lys Leu Glu Ala Gln Ala Tyr Thr Ala Tyr  
 177 182 187 192

ctc tca gga atg cta cgt ttt gaa cat caa gaa tgg aaa gct gcc att 624  
 Leu Ser Gly Met Leu Arg Phe Glu His Gln Glu Trp Lys Ala Ala Ile  
 193 198 203 208

gag gct ttt aac aaa tgc aaa act atc tat	gag aag cta gcc agt gct	672
Glu Ala Phe Asn Lys Cys Lys Thr Ile Tyr	Glu Lys Leu Ala Ser Ala	
209	214 219 224	
ttc aca gag gag cag gct gtg ctg tat aac	caa cgt gtg gaa gag att	720
Phe Thr Glu Glu Gln Ala Val Leu Tyr Asn	Gln Arg Val Glu Glu Ile	
225	230 235 240	
tca ccc aac atc cgc tat tgt gca tat aat	att ggg gac cag tca gcc	768
Ser Pro Asn Ile Arg Tyr Cys Ala Tyr Asn	Ile Gly Asp Gln Ser Ala	
241	246 251 256	
atc aat gaa ctc atg cag atg aga ttg agg	tct ggg ggc act gag ggt	816
Ile Asn Glu Leu Met Gln Met Arg Leu Arg	Ser Gly Gly Thr Glu Gly	
257	262 267 272	
ctc ttg gct gaa aaa ttg gag gct ttg atc	act cag act cga gcc aaa	864
Leu Leu Ala Glu Lys Leu Glu Ala Leu Ile	Thr Gln Thr Arg Ala Lys	
273	278 283 288	
cag gca gct acc atg agt gaa gtg gag tgg	aga ggg aga acg gtt cca	912
Gln Ala Ala Thr Met Ser Glu Val Glu Trp	Arg Gly Arg Thr Val Pro	
289	294 299 304	
gtg aag att gac aaa gtg cgc att ttc tta	tta gga ctg gct gat aac	960
Val Lys Ile Asp Lys Val Arg Ile Phe Leu	Leu Gly Leu Ala Asp Asn	
305	310 315 320	
gaa gca gct att gtc cag gct gaa agc gaa	gaa act aag gag cgc ctg	1008
Glu Ala Ala Ile Val Gln Ala Glu Ser Glu	Glu Thr Lys Glu Arg Leu	
321	326 331 336	
ttt gaa tca atg ctc agc gag tgt cgg gac	gcc atc cag gtg gtt cgg	1056
Phe Glu Ser Met Leu Ser Glu Cys Arg Asp	Ala Ile Gln Val Val Arg	
337	342 347 352	
gag gag ctc aag cca gat cag aaa cag aga	gat tat atc ctt gaa gga	1104
Glu Glu Leu Lys Pro Asp Gln Lys Gln Arg	Asp Tyr Ile Leu Glu Gly	
353	358 363 368	
gag cca ggg aag gtg tct aat ctt caa tac	ttg cat agc tac ctg act	1152
Glu Pro Gly Lys Val Ser Asn Leu Gln Tyr	Leu His Ser Tyr Leu Thr	
369	374 379 384	
tac atc aag cta tca acg gca atc aag cgt	aat gag aac atg gcc aaa	1200
Tyr Ile Lys Leu Ser Thr Ala Ile Lys Arg	Asn Glu Asn Met Ala Lys	
385	390 395 400	
ggg ctg cag agg gct ctg ctg cag cag cag	cca gag gat gac agc aag	1248
Gly Leu Gln Arg Ala Leu Leu Gln Gln Gln	Pro Glu Asp Asp Ser Lys	
401	406 411 416	
cgc tca ccc cgg ccc cag gac ctg atc cga	ctc tat gac atc atc tta	1296
Arg Ser Pro Arg Pro Gln Asp Leu Ile Arg	Leu Tyr Asp Ile Ile Leu	
417	422 427 432	
cag aat ctg gtg gaa ttg ctc cag ctt cct	ggg tta gag gaa gac aaa	1344

Gln Asn Leu Val Glu Leu Leu Gln Leu Pro Gly Leu Glu Glu Asp Lys	
433 438 443 448	
gcc ttc cag aaa gag ata ggc ctc aag act ctg gtg ttc aaa gct tac	1392
Ala Phe Gln Lys Glu Ile Gly Leu Lys Thr Leu Val Phe Lys Ala Tyr	
449 454 459 464	
agg tgt ttt ttc att gct cag tcc tat gtg ctg gtg aag aag tgg agc	1440
Arg Cys Phe Phe Ile Ala Gln Ser Tyr Val Leu Val Lys Lys Trp Ser	
465 470 475 480	
gaa gcc ctt gtc ctg tat gac aga gtc ctg aaa tat gca aat gaa gta	1488
Glu Ala Leu Val Leu Tyr Asp Arg Val Leu Lys Tyr Ala Asn Glu Val	
481 486 491 496	
aat tct gat gct ggc gcc ttc aag aac agc cta aag gac ctg cct gat	1536
Asn Ser Asp Ala Gly Ala Phe Lys Asn Ser Leu Lys Asp Leu Pro Asp	
497 502 507 512	
gtg caa gag ctc atc act caa gtg cgg tca gag aag tgc tcc ctg cag	1584
Val Gln Glu Leu Ile Thr Gln Val Arg Ser Glu Lys Cys Ser Leu Gln	
513 518 523 528	
gcc gca gcc atc ctt gat gca aac gac gct cat caa aca gag acc tcc	1632
Ala Ala Ala Ile Leu Asp Ala Asn Asp Ala His Gln Thr Glu Thr Ser	
529 534 539 544	
tcc tcc caa gtc aag gac aat aag cct ctg gtt gaa cgg ttt gag aca	1680
Ser Ser Gln Val Lys Asp Asn Lys Pro Leu Val Glu Arg Phe Glu Thr	
545 550 555 560	
ttc tgc ctg gac cct tcc ctt gtc acc aag caa gcc aac ctt gtg cac	1728
Phe Cys Leu Asp Pro Ser Leu Val Thr Lys Gln Ala Asn Leu Val His	
561 566 571 576	
ttc cca cca ggc ttc cag ccc att ccc tgc aag cct ttg ttc ttt gac	1776
Phe Pro Pro Gly Phe Gln Pro Ile Pro Cys Lys Pro Leu Phe Phe Asp	
577 582 587 592	
ctg gcc ctc aac cat gtg gct ttc cca ccc ctt gag gac aag ttg gaa	1824
Leu Ala Leu Asn His Val Ala Phe Pro Pro Leu Glu Asp Lys Leu Glu	
593 598 603 608	
cag aag acc aag agt ggc ctc act gga tac atc aag ggc atc ttt gga	1872
Gln Lys Thr Lys Ser Gly Leu Thr Gly Tyr Ile Lys Gly Ile Phe Gly	
609 614 619 624	
ttc agg agc taa cca ggctcttcct cgggggcccggg ggagattctg actcttaatc	1927
Phe Arg Ser *	
625	
tgtattgtga gaaaatccca gcaagttcca tgatattaaa tcca	1971

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 <222> (101)..(1282)

<400> 961

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gcagctgagc gtgattcccg ggtcgacgat ttcgtggaag atg gac gca gct act 115  
 Met Asp Ala Ala Thr  
 1

ctg acc tac gac act ctc cgg ttt gct gag ttt gaa gat ttt cct gag 163  
 Leu Thr Tyr Asp Thr Leu Arg Phe Ala Glu Phe Glu Asp Phe Pro Glu  
 6 11 16 21

acc tca gag ccc gtt tgg ata ctg ggt aga aaa tac agc att ttc aca 211  
 Thr Ser Glu Pro Val Trp Ile Leu Gly Arg Lys Tyr Ser Ile Phe Thr  
 22 27 32 37

gaa aag gac gag atc ttg tct gat gtg gca tct aga ctt tgg ttt aca 259  
 Glu Lys Asp Glu Ile Leu Ser Asp Val Ala Ser Arg Leu Trp Phe Thr  
 38 43 48 53

tac agg aaa aac ttt cca gcc att ggg ggg aca ggc ccc acc tcg gac 307  
 Tyr Arg Lys Asn Phe Pro Ala Ile Gly Gly Thr Gly Pro Thr Ser Asp  
 54 59 64 69

aca ggc tgg ggc tgc atg ctg cgg tgt gga cag atg atc ttt gcc caa 355  
 Thr Gly Trp Gly Cys Met Leu Arg Cys Gly Gln Met Ile Phe Ala Gln  
 70 75 80 85

gcc ctg gtg tgc cgg cac cta ggc cga gat tgg agg tgg aca caa agg 403  
 Ala Leu Val Cys Arg His Leu Gly Arg Asp Trp Arg Trp Thr Gln Arg  
 86 91 96 101

aag agg cag cca gac agc tac ttc agc gtc ctc aac gca ttc atc gac 451  
 Lys Arg Gln Pro Asp Ser Tyr Phe Ser Val Leu Asn Ala Phe Ile Asp  
 102 107 112 117

agg aag gac agt tac tac tcc att cac cag ata gcg caa atg gga gtt 499  
 Arg Lys Asp Ser Tyr Tyr Ser Ile His Gln Ile Ala Gln Met Gly Val  
 118 123 128 133

ggc gaa ggc aag tcc ata ggc cag tgg tac ggg ccc aac act gtc gcc 547  
 Gly Glu Gly Lys Ser Ile Gly Gln Trp Tyr Gly Pro Asn Thr Val Ala  
 134 139 144 149

cag gtc ctg aag aag ctt gct gtc ttc gat acg tgg agc tcc ttg gcg 595  
 Gln Val Leu Lys Lys Leu Ala Val Phe Asp Thr Trp Ser Ser Leu Ala  
 150 155 160 165

gtc cac att gca atg gac aac act gtt gtg atg gag gaa atc aga agg 643  
 Val His Ile Ala Met Asp Asn Thr Val Val Met Glu Glu Ile Arg Arg

166	171	176	181	
ttg tgc agg acc agc gtt ccc tgt gca ggc gcc act gcg ttt cct gca				691
Leu Cys Arg Thr Ser Val Pro Cys Ala Gly Ala Thr Ala Phe Pro Ala				
182	187	192	197	
gat tcc gac cgg cac tgc aac gga ttc cct gcc gga gct gag gtc acc				739
Asp Ser Asp Arg His Cys Asn Gly Phe Pro Ala Gly Ala Glu Val Thr				
198	203	208	213	
aac agg ccg tgc cca tgg aga ccc ctg gta ctt ctc att ccc ctg cgc				787
Asn Arg Pro Ser Pro Trp Arg Pro Leu Val Leu Leu Ile Pro Leu Arg				
214	219	224	229	
ctg ggg ctc acg gac atc aac gag gcc tac gtg gag acg ctg aag cac				835
Leu Gly Leu Thr Asp Ile Asn Glu Ala Tyr Val Glu Thr Leu Lys His				
230	235	240	245	
tgc ttc atg atg ccc cag tcc ctg ggc gtc atc gga ggg aag ccc aac				883
Cys Phe Met Met Pro Gln Ser Leu Gly Val Ile Gly Gly Lys Pro Asn				
246	251	256	261	
agc gcc cac tac ttc atc ggc tac gtt ggt gag gag ctc atc tac ctg				931
Ser Ala His Tyr Phe Ile Gly Tyr Val Gly Glu Glu Leu Ile Tyr Leu				
262	267	272	277	
gac ccc cac acc acg cag cca gcc gtg gag ccc act gat ggc tgc ttc				979
Asp Pro His Thr Thr Gln Pro Ala Val Glu Pro Thr Asp Gly Cys Phe				
278	283	288	293	
atc ccg gac gag agc ttc cac tgc cag cac ccg ccg tgc cgc atg agc				1027
Ile Pro Asp Glu Ser Phe His Cys Gln His Pro Pro Cys Arg Met Ser				
294	299	304	309	
atc gcg gag ctt gac ccg tcc atc gct gtg ggg ttt ttc tgt aag act				1075
Ile Ala Glu Leu Asp Pro Ser Ile Ala Val Gly Phe Phe Cys Lys Thr				
310	315	320	325	
gaa gat gac ttc aat gat tgg tgc cag caa gtc aaa aag ctg tct ctg				1123
Glu Asp Asp Phe Asn Asp Trp Cys Gln Gln Val Lys Lys Leu Ser Leu				
326	331	336	341	
ctt gga ggt gcc ctg ccc atg ttt gag ctg gtg gag cag cag cct tca				1171
Leu Gly Gly Ala Leu Pro Met Phe Glu Leu Val Glu Gln Gln Pro Ser				
342	347	352	357	
cat ctg gcc tgc ccc gac gtc ctg aac ctg tcc cta gat tct tct gat				1219
His Leu Ala Cys Pro Asp Val Leu Asn Leu Ser Leu Asp Ser Ser Asp				
358	363	368	373	
gta gag cga ctg gaa aga ttc ttc gac tca gaa gat gaa gac ttt gaa				1267
Val Glu Arg Leu Glu Arg Phe Phe Asp Ser Glu Asp Glu Asp Phe Glu				
374	379	384	389	
atc ctg tcc ctt tga aaatcctggg gtcgggggtg gcacctgtga gagcctgggg				1322
Ile Leu Ser Leu *				
390				



ctcctggtgc cgctgcgttt catccatccc gcccgctcgc ctgccgaggg ctgcgccccg 1382  
 tgctgcctcc cccagaggg ccacccgctg tgctcgtgga ctgaggctgc gctgccccgg 1442  
 aggcocttact gcttggtgtc agactgcccga gctcagagtg cccgtcaggg cctgtgcac 1502  
 cgcaocgcgga gccgtctgtt aggagcttcc agagcgttct ctcgacactg ccagccccgt 1562  
 gttagcaoct gggcctcagt cccacttgct cccaggcgcc gggtctgtgg ttggtttgga 1622  
 attaaagtcc tgtttgaagt tgtcaaaaaa aaa 1655

<210> 962  
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 <212> DNA  
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 <222> (67)..(444)

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 ggcgct atg ccg ggg cgg cac gtt tct cga gtc cgg gca ttg tac aag 108  
 Met Pro Gly Arg His Val Ser Arg Val Arg Ala Leu Tyr Lys  
 1 5 10  
 cgc gtc ttg cag ctg cac cgt gtt ctg ccc ccg gac ctc aaa tcc ctg 156  
 Arg Val Leu Gln Leu His Arg Val Leu Pro Pro Asp Leu Lys Ser Leu  
 15 20 25 30  
 ggc gac cag tac gtg aaa gac gaa ttt agg aga cat aag acc gtt ggt 204  
 Gly Asp Gln Tyr Val Lys Asp Glu Phe Arg Arg His Lys Thr Val Gly  
 31 36 41 46  
 tct gac gag gca cag cgt ttc ttg caa gaa tgg gag gtg tat gca aca 252  
 Ser Asp Glu Ala Gln Arg Phe Leu Gln Glu Trp Glu Val Tyr Ala Thr  
 47 52 57 62  
 gcg tta ttg caa cag gct aac gaa aac aga caa aat tca act gga aaa 300  
 Ala Leu Leu Gln Gln Ala Asn Glu Asn Arg Gln Asn Ser Thr Gly Lys  
 63 68 73 78  
 gca tgt ttt ggc acc ttc ctc cca gaa gaa aaa ctt aat gac ttt cgt 348  
 Ala Cys Phe Gly Thr Phe Leu Pro Glu Glu Lys Leu Asn Asp Phe Arg  
 79 84 89 94  
 gat gaa caa att gga cag ttg cag gag ctg atg caa gaa gcc aca aaa 396  
 Asp Glu Gln Ile Gly Gln Leu Gln Glu Leu Met Gln Glu Ala Thr Lys  
 95 100 105 110  
 ccc aat agg caa ttt agt att tct gag tct atg aaa cca aaa ttt tag 444

Pro Asn Arg Gln Phe Ser Ile Ser Glu Ser Met Lys Pro Lys Phe \*  
 111 116 121 126

tctatacaac aaagcttaat aagacatgca aaaatttaga acccctactt taactgtcat 504  
 tgggttttga aatatattta agctttgaaa acacctgtta ttaatgaaat actcttttat 564  
 tttggatatt atgattgcag tatatggatc aagatcacta gtgacaattg aaaaaaacta 624  
 ttggaataat agcacttgta taaaattcag ttttggaact aaacagcaaa tttctagaat 684  
 tttgctgaaa atgtttttaa atgctattct catccagcca tattagtctt ctggcttttc 744  
 tttagcttca tcaaataagc atgttgtgat aatgatagat gtacaattcc aacaagggtta 804  
 ttatttttta aatacattgt cattctgaac attttatcac ttctagtta ataatacata 864  
 catgattttt cttctgaatg tctcttctcc ctgcatcact gttcattcac aatgaaagggt 924  
 taggaagaag ctttaaaatt cactatttta ctatcaatca tttgtataat aaactataca 984  
 aagtataaaa aaaaaa 1000

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 <212> DNA  
 <213> Homo sapiens

<220>  
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<400> 963  
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 ggogct atg ccg ggg cgg cac gtt tct cga gtc cgg gca ttg tac aag 108  
 Met Pro Gly Arg His Val Ser Arg Val Arg Ala Leu Tyr Lys  
 1 5 10  
 cgc gtc ttg cag ctg cac cgt gtt ctg ccc ccg gac ctc aaa tcc ctg 156  
 Arg Val Leu Gln Leu His Arg Val Leu Pro Pro Asp Leu Lys Ser Leu  
 15 20 25 30  
 ggc gac cag gtg tat gca aca gcg tta ttg caa cag gct aac gaa aac 204  
 Gly Asp Gln Val Tyr Ala Thr Ala Leu Leu Gln Gln Ala Asn Glu Asn  
 31 36 41 46  
 aga caa aat tca act gga aaa gca tgt ttt ggc acc ttc ctc cca gaa 252  
 Arg Gln Asn Ser Thr Gly Lys Ala Cys Phe Gly Thr Phe Leu Pro Glu  
 47 52 57 62  
 gaa aaa ctt aat gac ttt cgt gat gaa caa att gga cag ttg cag gag 300  
 Glu Lys Leu Asn Asp Phe Arg Asp Glu Gln Ile Gly Gln Leu Gln Glu  
 63 68 73 78

ctg atg caa gaa gcc aca aaa ccc aat agg caa ttt agt att tct gag 348  
 Leu Met Gln Glu Ala Thr Lys Pro Asn Arg Gln Phe Ser Ile Ser Glu  
 79 84 89 94

tct atg aaa cca aaa ttt tag tc tataacaaca agcttaataa gacatgcaaa 401  
 Ser Met Lys Pro Lys Phe \*  
 95 100

aatttagaac ccctacttta actgtcattg gtttttgaaa tatatttaag ctttgaaaac 461

acctgttatt aatgaaatac tctttttattt tggatattat gattgcagta tatggatcaa 521

gatcactagt gacaattgaa aaaaactatt ggaataatag cacttgtata aaattcagtt 581

ttggaactaa acagcaaatt tctagaattt tgctgaaaat gttttaaaat gctattctca 641

tccagccata ttagtcttct ggcttttctt tagcttcac aaataagcat gttgtgataa 701

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cgccgcccc ctcgccccag ccgccgcc atg aag gcc gtg gtg cag cgc gtc 172  
 Met Lys Ala Val Val Gln Arg Val  
 1 5

acc cgg gcc agc gtc aca gtt gga gga gag cag att agt gcc att gga 220  
 Thr Arg Ala Ser Val Thr Val Gly Gly Glu Gln Ile Ser Ala Ile Gly  
 9 14 19 24

agg ggc ata tgt gtg ttg ctg ggt att tcc ctg gag gat acg cag aag 268  
 Arg Gly Ile Cys Val Leu Leu Gly Ile Ser Leu Glu Asp Thr Gln Lys  
 25 30 35 40

gaa ctg gaa cac atg gtc cga aag att cta aac ctg cgt gta ttt gag 316

Glu Leu Glu His Met Val Arg Lys Ile Leu Asn Leu Arg Val Phe Glu	
41 46 51 56	
gat gag agt ggg aag cac tgg tgg aag agt gtg atg gac aaa cag tac	364
Asp Glu Ser Gly Lys His Trp Ser Lys Ser Val Met Asp Lys Gln Tyr	
57 62 67 72	
gag att ctg tgt gtc agc cag ttt acc ctc cag tgt gtc ctg aag gga	412
Glu Ile Leu Cys Val Ser Gln Phe Thr Leu Gln Cys Val Leu Lys Gly	
73 78 83 88	
aac aag cct gat ttc cac cta gca atg ccc acg gag cag gca gag ggc	460
Asn Lys Pro Asp Phe His Leu Ala Met Pro Thr Glu Gln Ala Glu Gly	
89 94 99 104	
ttc tac aac agc ttc ctg gag cag ctg cgt aaa aca tac agg ccg gag	508
Phe Tyr Asn Ser Phe Leu Glu Gln Leu Arg Lys Thr Tyr Arg Pro Glu	
105 110 115 120	
ctt atc aaa gat ggc aag ttt ggg gcc tac atg cag gtg cac att cag	556
Leu Ile Lys Asp Gly Lys Phe Gly Ala Tyr Met Gln Val His Ile Gln	
121 126 131 136	
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Asn Asp Gly Pro Val Thr Ile Glu Leu Glu Ser Pro Ala Pro Gly Thr	
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Ala Thr Ser Asp Pro Lys Gln Leu Ser Lys Leu Glu Lys Gln Gln Gln	
153 158 163 168	
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Arg Lys Glu Lys Thr Arg Ala Lys Gly Pro Ser Glu Ser Ser Lys Glu	
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aga aac act ccc cga aaa gaa gac cgc agt gcc agc agc ggg gct gag	748
Arg Asn Thr Pro Arg Lys Glu Asp Arg Ser Ala Ser Ser Gly Ala Glu	
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Gly Asp Val Ser Ser Glu Arg Glu Pro *	
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Ile Thr Gln Leu Leu Asn Gln Phe Glu Asn Thr Gly Pro Pro Pro Ala	
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gat aaa gag aaa atc cag gcc ctc ccc acc gtc ccc gtc act gag gag	663
Asp Lys Glu Lys Ile Gln Ala Leu Pro Thr Val Pro Val Thr Glu Glu	
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His Val Gly Ser Gly Leu Glu Cys Pro Val Cys Lys Asp Asp Tyr Ala	
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Leu Gly Glu Arg Val Arg Gln Leu Pro Cys Asn His Leu Phe His Asp	
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Gly Cys Ile Val Pro Trp Leu Glu Gln His Asp Ser Cys Pro Val Cys	
187 192 197 202	
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Arg Lys Ser Leu Thr Gly Gln Asn Thr Ala Thr Asn Pro Pro Gly Leu	
203 208 213 218	
act ggg gtg agc ttc tcc tcc tgc tgc tca tgc tcc tcc tcc agc tgc	903
Thr Gly Val Ser Phe Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	
219 224 229 234	
ccc agc aac gag aac gcc aca agc aac tgc tga gccacgt cggccgtcgg	954
Pro Ser Asn Glu Asn Ala Thr Ser Asn Ser *	
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Ala Arg Leu Arg Asp Cys Leu Pro Arg Leu Met Leu Thr Leu Arg Ser						
2 7 12 17						
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Leu Leu Phe Trp Ser Leu Val Tyr Cys Tyr Cys Gly Leu Cys Ala Ser						
18 23 28 33						
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Ile His Leu Leu Lys Leu Leu Trp Ser Leu Gly Lys Gly Pro Ala Gln						
34 39 44 49						
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Thr Phe Arg Arg Pro Ala Arg Glu His Pro Pro Ala Cys Leu Ser Asp						
50 55 60 65						
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Pro Ser Leu Gly Thr His Cys Tyr Val Arg Ile Lys Asp Ser Gly Leu						
66 71 76 81						
aga ttt cac tat gtt gct gct gga gaa aga ggc aaa cca ctt atg ctg	405					
Arg Phe His Tyr Val Ala Ala Gly Glu Arg Gly Lys Pro Leu Met Leu						
82 87 92 97						
ctg ctt cat gga ttt cca gaa ttc tgg tat tct tgg cgt tac caa ctg	453					
Leu Leu His Gly Phe Pro Glu Phe Trp Tyr Ser Trp Arg Tyr Gln Leu						
98 103 108 113						
aga gaa ttt aaa agt gaa tat cga gtt gta gca ctg gat ttg aga ggt	501					
Arg Glu Phe Lys Ser Glu Tyr Arg Val Val Ala Leu Asp Leu Arg Gly						
114 119 124 129						
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Tyr Gly Glu Thr Asp Ala Pro Ile His Arg Gln Asn Tyr Lys Leu Asp						
130 135 140 145						
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Cys Leu Ile Thr Asp Ile Lys Asp Ile Leu Asp Ser Leu Gly Tyr Ser						
146 151 156 161						

aaa tgt gtt ctt att ggc cat gac tgg ggg ggc atg att gct tgg cta	645
Lys Cys Val Leu Ile Gly His Asp Trp Gly Gly Met Ile Ala Trp Leu	
162 167 172 177	
att gcc atc tgt tat cct gaa atg gtg atg aag ctt att gtt att aac	693
Ile Ala Ile Cys Tyr Pro Glu Met Val Met Lys Leu Ile Val Ile Asn	
178 183 188 193	
ttc cct cat cca aat gta ttt aca gaa tat att tta cga cac cct gct	741
Phe Pro His Pro Asn Val Phe Thr Glu Tyr Ile Leu Arg His Pro Ala	
194 199 204 209	
cag ctg ttg aaa tcc agt tat tat tac ttc ttc caa ata cca tgg ttc	789
Gln Leu Leu Lys Ser Ser Tyr Tyr Tyr Phe Phe Gln Ile Pro Trp Phe	
210 215 220 225	
cca gaa ttt atg ttc tca ata aat gat ttc aag gtt ttg aaa cat ctg	837
Pro Glu Phe Met Phe Ser Ile Asn Asp Phe Lys Val Leu Lys His Leu	
226 231 236 241	
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Phe Thr Ser His Ser Thr Gly Ile Gly Arg Lys Gly Cys Gln Leu Thr	
242 247 252 257	
aca gag gat ctt gaa gct tat att tat gtc ttt tct cag cct gga gca	933
Thr Glu Asp Leu Glu Ala Tyr Ile Tyr Val Phe Ser Gln Pro Gly Ala	
258 263 268 273	
tta agt ggc cca att aac cat tac cga aat atc ttc agc tgc ctg cct	981
Leu Ser Gly Pro Ile Asn His Tyr Arg Asn Ile Phe Ser Cys Leu Pro	
274 279 284 289	
ctc aaa cat cac atg gtg acc act cca aca cta cta ctg tgg gga gag	1029
Leu Lys His His Met Val Thr Thr Pro Thr Leu Leu Leu Trp Gly Glu	
290 295 300 305	
aat gac gca ttc atg gag gtt gag atg gct gaa gtc aca aag att tat	1077
Asn Asp Ala Phe Met Glu Val Glu Met Ala Glu Val Thr Lys Ile Tyr	
306 311 316 321	
gtt aaa aac tat ttc agg cta act att ttg tca gaa gcc agt cat tgg	1125
Val Lys Asn Tyr Phe Arg Leu Thr Ile Leu Ser Glu Ala Ser His Trp	
322 327 332 337	
ctt cag caa gac caa cct gac ata gtg aac aaa ttg ata tgg aca ttt	1173
Leu Gln Gln Asp Gln Pro Asp Ile Val Asn Lys Leu Ile Trp Thr Phe	
338 343 348 353	
cta aaa gaa gaa aca aga aaa aaa gat tga c ttttcttttat cttctatgaa	1224
Leu Lys Glu Glu Thr Arg Lys Lys Asp *	
354 359	
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tattagaaaa aaactgtttt aatgtgcttt atcataaata aatatcctga caaatggat	1344



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 Arg Ala Trp Arg Leu Pro Arg Glu Gly Leu Gly Pro His Gly Pro Ser  
 6 11 16 21

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 Phe Ala Arg Val Pro Val Ala Pro Ser Ser Ser Ser Gly Gly Arg Gly  
 22 27 32 37

ggc gcc gag ccg agg ccg ctt ccg ctt tcc tac agg ctt ctg gac ggg 199  
 Gly Ala Glu Pro Arg Pro Leu Pro Leu Ser Tyr Arg Leu Leu Asp Gly  
 38 43 48 53

gag gca gcc ctc ccg gcc gtc gtc ttt ttg cac ggc ctc ttc ggc agc 247  
 Glu Ala Ala Leu Pro Ala Val Val Phe Leu His Gly Leu Phe Gly Ser  
 54 59 64 69

aaa act aac ttc aac tcc atc gcc aag atc ttg gcc cag cag aca ggc 295  
 Lys Thr Asn Phe Asn Ser Ile Ala Lys Ile Leu Ala Gln Gln Thr Gly  
 70 75 80 85

cgt agg gtg ctg acg gtg gat gct cgt aac cac ggt gac agc ccc cac 343  
 Arg Arg Val Leu Thr Val Asp Ala Arg Asn His Gly Asp Ser Pro His  
 86 91 96 101

agc cca gac atg agc tac gag atc atg agc cag gac ctg cag gac ctt 391  
 Ser Pro Asp Met Ser Tyr Glu Ile Met Ser Gln Asp Leu Gln Asp Leu  
 102 107 112 117

ctg ccc cag ctg ggc ctg gtg ccc tgc gtc gtc gtt ggc cac agc atg 439  
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1426

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gcgcgcccttt tttttttttt tttctttttt attatgaaca cctaggcagt gaaaactgtt 180

atgttaatac atacatagac acacccaaaa catacaaaaa tactattatt tcaaactact 240

aagaatagga cagttcaatt attttcatgc tatgacttta agagcattac actgaaacaa 300

acaagaagtt aaacgacatt ttttttaata tcccagaaat ataccaaaat atacatctaa 360

gctttggaat tactgagggt agactaatgc aagtgcgtggg taatcgtact taatacacga 420

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cccccaagtt aaaaagtcac aggcattctac ctagcacaaa aggttgtgaa gtacaatgca 660

tagttgcaca gtggtgctgc aaaaaggaaa gaaaactaca ataaagagaa atgaaaagct 720

tgataatctt tctgc atg ttt tct cac aaa cag gac agc cac ttc caa gca 771

Met Phe Ser His Lys Gln Asp Ser His Phe Gln Ala

1

5

10

ggt cca gta cag gaa aag aaa aaa agg ctc aga agg gca ccg tgg cgt 819

Val Pro Val Gln Glu Lys Lys Lys Arg Leu Arg Arg Ala Pro Trp Arg

13

18

23

28

gca ttc gcc cag ccc cag agg tta aag cac cca gca gag cag cca atc 867

Ala Phe Ala Gln Pro Gln Arg Leu Lys His Pro Ala Glu Gln Pro Ile

29

34

39

44

gtg cgc cag tgt ctt caa cgt ccc cca ctc tgt gga gtc ctc ggg cca 915

Val Arg Gln Cys Leu Gln Arg Pro Pro Leu Cys Gly Val Leu Gly Pro

45

50

55

60

gtc cag cag cag ctc cca ccc tcc cta ggc cct gtg cta agt ccc cat 963

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61					66					71					76	
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Ser	Asp	Pro	Gly	Trp	Cys	Arg	Val	Asp	Asp	Gly	Gly	Asp	Gly	Val	Phe	
77					82					87					92	
tga	cttt	tgtttt	ggaa	aatctg	aaat	gccaat	ttt	gt	ttcagg	gcat	gctcaca	agt				1068
*																
93																
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cttttaagt	ccaggacacc	acagactgga	ctgatgctga	agacttccct	tttcttctcg											1248
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aaagaacttg ccagcagaat ggagagtggc cagggaaaca gcccatctgc ataaaagcct	480
gccgagaacc aaagatttca gacctggtga gaaggagagt tcttccg atg cag gtt	536
	Met Gln Val

1

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Gln Ser Arg Glu Thr Pro Leu His Gln Leu Tyr Ser Ala Ala Phe Ser	
4 9 14 19	
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Lys	Gln	Lys	Leu	Gln	Ser	Ala	Pro	Thr	Lys	Lys	Pro	Ala	Leu	Pro	Phe	
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Gly	Asp	Leu	Pro	Met	Gly	Tyr	Gln	His	Leu	His	Thr	Gln	Leu	Gln	Tyr	
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gag	tgc	atc	tca	ccc	ttc	tac	cgc	cgc	ctg	ggc	agc	agc	agg	agg	aca	728
Glu	Cys	Ile	Ser	Pro	Phe	Tyr	Arg	Arg	Leu	Gly	Ser	Ser	Arg	Arg	Thr	
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tgt	ctg	agg	act	ggg	aag	tgg	agt	ggg	cgg	gca	cca	tcc	tgc	atc	cct	776
Cys	Leu	Arg	Thr	Gly	Lys	Trp	Ser	Gly	Arg	Ala	Pro	Ser	Cys	Ile	Pro	
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atc	tgc	ggg	aaa	att	gag	aac	atc	act	gct	cca	aag	acc	caa	ggg	ttg	824
Ile	Cys	Gly	Lys	Ile	Glu	Asn	Ile	Thr	Ala	Pro	Lys	Thr	Gln	Gly	Leu	
84					89					94					99	
cgc	tgg	ccg	tgg	cag	gca	gcc	atc	tac	agg	agg	acc	agc	ggg	gtg	cat	872
Arg	Trp	Pro	Trp	Gln	Ala	Ala	Ile	Tyr	Arg	Arg	Thr	Ser	Gly	Val	His	
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gac	ggc	agc	cta	cac	aag	gga	gcg	tgg	ttc	cta	gtc	tgc	agc	ggg	gcc	920
Asp	Gly	Ser	Leu	His	Lys	Gly	Ala	Trp	Phe	Leu	Val	Cys	Ser	Gly	Ala	
116					121					126					131	
ctg	gtg	aat	gag	cgc	act	gtg	gtg	gtg	gct	gcc	cac	tgt	gtt	act	gac	968
Leu	Val	Asn	Glu	Arg	Thr	Val	Val	Val	Ala	Ala	His	Cys	Val	Thr	Asp	
132					137					142					147	
ctg	ggg	aag	gtc	acc	atg	atc	aag	aca	gca	gac	ctg	aaa	gtt	gtt	ttg	1016
Leu	Gly	Lys	Val	Thr	Met	Ile	Lys	Thr	Ala	Asp	Leu	Lys	Val	Val	Leu	
148					153					158					163	
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Gly	Lys	Phe	Tyr	Arg	Asp	Asp	Asp	Arg	Asp	Glu	Lys	Thr	Ile	Gln	Ser	
164					169					174					179	
cta	cag	att	tct	gct	atc	att	ctg	cat	ccc	aac	tat	gac	ccc	atc	ctg	1112
Leu	Gln	Ile	Ser	Ala	Ile	Ile	Leu	His	Pro	Asn	Tyr	Asp	Pro	Ile	Leu	
180					185					190					195	
ctt	gat	gct	gac	atc	gcc	atc	ctg	aag	ctc	cta	gac	aag	gcc	cgt	atc	1160
Leu	Asp	Ala	Asp	Ile	Ala	Ile	Leu	Lys	Leu	Leu	Asp	Lys	Ala	Arg	Ile	
196					201					206					211	
agc	acc	cga	gtc	cag	ccc	atc	tgc	ctc	gct	gcc	agt	cgg	gat	ctc	agc	1208
Ser	Thr	Arg	Val	Gln	Pro	Ile	Cys	Leu	Ala	Ala	Ser	Arg	Asp	Leu	Ser	
212					217					222					227	
act	tcc	ttc	cag	gag	tcc	cac	atc	act	gtg	gct	ggc	tgg	aat	gtc	ctg	1256
Thr	Ser	Phe	Gln	Glu	Ser	His	Ile	Thr	Val	Ala	Gly	Trp	Asn	Val	Leu	
228					233					238					243	
gca	gac	gtg	agg	agc	cct	ggc	ttc	aag	aac	gac	aca	ctg	cgc	tct	ggg	1304
Ala	Asp	Val	Arg	Ser	Pro	Gly	Phe	Lys	Asn	Asp	Thr	Leu	Arg	Ser	Gly	

244	249	254	259	
gtg gtc agt gtg gtg gac tcg ctg ctg tgt gag gag cag cat gag gac				1352
Val Val Ser Val Val Asp Ser Leu Leu Cys Glu Glu Gln His Glu Asp				
260	265	270	275	
cat ggc atc cca gtg agt gtc act gat aac atg ttc tgt gcc agc tgg				1400
His Gly Ile Pro Val Ser Val Thr Asp Asn Met Phe Cys Ala Ser Trp				
276	281	286	291	
gaa ccc act gcc cct tct gat atc tgc act gca gag aca gga ggc atc				1448
Glu Pro Thr Ala Pro Ser Asp Ile Cys Thr Ala Glu Thr Gly Gly Ile				
292	297	302	307	
gcg gct gtg tcc ttc ccg gga cga gca tct cct gag cca cgc tgg cat				1496
Ala Ala Val Ser Phe Pro Gly Arg Ala Ser Pro Glu Pro Arg Trp His				
308	313	318	323	
ctg atg gga ctg gtc agc tgg agc tat gat aaa aca tgc agc cac agg				1544
Leu Met Gly Leu Val Ser Trp Ser Tyr Asp Lys Thr Cys Ser His Arg				
324	329	334	339	
ctc tcc act gcc ttc acc aag gtg ctg cct ttt aaa gac tgg att gaa				1592
Leu Ser Thr Ala Phe Thr Lys Val Leu Pro Phe Lys Asp Trp Ile Glu				
340	345	350	355	
aga aat atg aaa tga accatgctca tgcactcctt gagaagtgtt tctgtatatc				1647
Arg Asn Met Lys *				
356				
cgtctgtacg tgtgtcattg cgtgaagcag tgtgggcctg aagtgtgatt tggcctgtga				1707
acttggtgtt gccagggcctt ctgacttcag ggacaaaact cagtgaaggg tgagtagacc				1767
tccattgctg gtaggctgat gccgcgtcca ctactaggac agccaattgg aagatgccag				1827
ggcttgcaag aagtaagttt cttcaaagaa gaccatatac aaaacctctc cactccactg				1887
acctggtggt cttccccaac tttcagttat acgaatgcc aacagcttgac cagggaagat				1947
ctgggcttca tgaggccctt tttgaggctc tcaagttcta gagagctgcc tgtgggacag				2007
cccagggcag cagagctggg atgtggtgca tgcctttgtg tacatggcca cagtacagtc				2067
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cga gcc gcg ctg tgc gag tgt cgg aga tgg cgg ggc ttc agc acc tcg 103  
Arg Ala Ala Leu Cys Glu Cys Arg Arg Trp Arg Gly Phe Ser Thr Ser  
7 12 17 22

gcc gtc ctg ggc cgc cgg aca ccc ccg ctg ggg ccg atg ccc aac agt 151  
Ala Val Leu Gly Arg Arg Thr Pro Pro Leu Gly Pro Met Pro Asn Ser  
23 28 33 38

gac atc gac ttg agc aac ctg gag cgg ctg gag aag tac cgg agc ttc 199  
Asp Ile Asp Leu Ser Asn Leu Glu Arg Leu Glu Lys Tyr Arg Ser Phe  
39 44 49 54

gac cgc tac cgg cgc cga gca gag cag gag gcg cag gcc ccg cac tgg 247  
Asp Arg Tyr Arg Arg Arg Ala Glu Gln Glu Ala Gln Ala Pro His Trp  
55 60 65 70

tgg cgg acc tac cga gag tat ttc ggg gag aag aca gat ccc aaa gag 295  
Trp Arg Thr Tyr Arg Glu Tyr Phe Gly Glu Lys Thr Asp Pro Lys Glu  
71 76 81 86

aag att gat att ggg ctg cct cca ccc aaa gtc tcc cgg acc caa cag 343  
Lys Ile Asp Ile Gly Leu Pro Pro Pro Lys Val Ser Arg Thr Gln Gln  
87 92 97 102

cta ctg gaa cgg aaa cag gcc atc cag gag ctt cgg gcc aat gtg gaa 391  
Leu Leu Glu Arg Lys Gln Ala Ile Gln Glu Leu Arg Ala Asn Val Glu  
103 108 113 118

gag gag cgg gct gcc cgc ctc cgc aca gcc agt gtc ccg ctg gat gcc 439  
Glu Glu Arg Ala Ala Arg Leu Arg Thr Ala Ser Val Pro Leu Asp Ala  
119 124 129 134

gtg cgg gcc gag tgg gag agg acc tgt ggc ccc tac cac aag cag cgt 487  
Val Arg Ala Glu Trp Glu Arg Thr Cys Gly Pro Tyr His Lys Gln Arg  
135 140 145 150

ctg gct gag tat tac ggc ctc tac cga gac ctg ttc cac ggt gcc acc 535  
Leu Ala Glu Tyr Tyr Gly Leu Tyr Arg Asp Leu Phe His Gly Ala Thr  
151 156 161 166

ttt gtg ccc cga gtc ccc ctg cac gtg gcc tac gct gtg ggt gag gat 583  
Phe Val Pro Arg Val Pro Leu His Val Ala Tyr Ala Val Gly Glu Asp  
167 172 177 182

gac ctg atg cct gtg tac tgt ggc aat gag gtg act cca acc gag gct 631  
Asp Leu Met Pro Val Tyr Cys Gly Asn Glu Val Thr Pro Thr Glu Ala  
183 188 193 198

gcc caa gcg cca gag gtg acc tat gag gca gaa gag ggc tcc ttg tgg 679

Ala Gln Ala Pro Glu Val Thr Tyr Glu Ala Glu Glu Gly Ser Leu Trp	
199 204 209 214	
acg ttg cta ctc act agc ttg gat ggg cac ctg ctg gag cca gat gct	727
Thr Leu Leu Leu Thr Ser Leu Asp Gly His Leu Leu Glu Pro Asp Ala	
215 220 225 230	
gag tac ctc cac tgg ctg cta acc aac atc ccg ggt aac cgg gtg gct	775
Glu Tyr Leu His Trp Leu Leu Thr Asn Ile Pro Gly Asn Arg Val Ala	
231 236 241 246	
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Glu Gly Gln Val Thr Cys Pro Tyr Leu Pro Pro Phe Pro Ala Arg Gly	
247 252 257 262	
tcc ggc atc cac cgt ctt gcc ttc ctg ctc ttc aag cag gac cag ccg	871
Ser Gly Ile His Arg Leu Ala Phe Leu Leu Phe Lys Gln Asp Gln Pro	
263 268 273 278	
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Ile Asp Phe Ser Glu Asp Ala Arg Pro Ser Pro Cys Tyr Gln Leu Ala	
279 284 289 294	
cag cgg acc ttc cgc act ttt gat ttc tac aag aaa cac caa gaa acc	967
Gln Arg Thr Phe Arg Thr Phe Asp Phe Tyr Lys Lys His Gln Glu Thr	
295 300 305 310	
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Val Thr Tyr Ile Phe His Gln Leu Leu Asp Met Arg Glu Pro Val Phe	
327 332 337 342	
gag ttc gtg cgg ccg ctc tag ag tatccctcga ggggcccaag cttacgcgta	1116
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ctc ttt gac acc aag gag agc ctg gac acc acc tgc aag gaa atc agc	417
Leu Phe Asp Thr Lys Glu Ser Leu Asp Thr Thr Cys Lys Glu Ile Ser	
67 72 77 82	
tgc tgc atc atc tcc tcc tgc cca ggg ccc cat gct att gtc cta gtt	465
Cys Cys Ile Ile Ser Ser Cys Pro Gly Pro His Ala Ile Val Leu Val	
83 88 93 98	
ctg ctg ctg ggc cgc tac aca gag gag gag cag aaa acc gtt gca ttg	513
Leu Leu Leu Gly Arg Tyr Thr Glu Glu Glu Gln Lys Thr Val Ala Leu	
99 104 109 114	
atc aag gct gtc ttt ggg aag tca gcc atg aag cac atg gtc atc ttg	561
Ile Lys Ala Val Phe Gly Lys Ser Ala Met Lys His Met Val Ile Leu	
115 120 125 130	
ttc act cgc aaa gaa gag ttg gag ggc cag agc ttc cat gac ttc ata	609
Phe Thr Arg Lys Glu Glu Leu Glu Gly Gln Ser Phe His Asp Phe Ile	
131 136 141 146	
gca gat gcg gat gtg ggc cta aaa agc atc gtc aag gag tgc ggg aac	657
Ala Asp Ala Asp Val Gly Leu Lys Ser Ile Val Lys Glu Cys Gly Asn	
147 152 157 162	
cgc tgc tgt gcc ttt agc aac agc aag aaa acc agt aag gca gag aag	705
Arg Cys Cys Ala Phe Ser Asn Ser Lys Lys Thr Ser Lys Ala Glu Lys	
163 168 173 178	
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Glu Ser Gln Val Gln Glu Leu Val Glu Leu Ile Glu Lys Met Val Gln	
179 184 189 194	
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Cys Asn Glu Gly Ala Tyr Phe Ser Asp Asp Ile Tyr Lys Asp Thr Glu	
195 200 205 210	
gaa agg ctg aaa caa cgg gaa gag gtt ttg agg aaa atc tac act gac	849
Glu Arg Leu Lys Gln Arg Glu Glu Val Leu Arg Lys Ile Tyr Thr Asp	
211 216 221 226	
caa tta aat gaa gaa att aaa cta gta gaa gag gat aag cat aaa tca	897
Gln Leu Asn Glu Glu Ile Lys Leu Val Glu Glu Asp Lys His Lys Ser	
227 232 237 242	
gag gaa gaa aag gag aaa gaa att aaa tta cta aaa tta aaa tat gat	945
Glu Glu Glu Lys Glu Lys Glu Ile Lys Leu Leu Lys Leu Lys Tyr Asp	
243 248 253 258	
gaa aaa aaa aaa aat ata agg gaa gaa gct gag aga aat ata ttt aaa	993
Glu Lys Lys Lys Asn Ile Arg Glu Glu Ala Glu Arg Asn Ile Phe Lys	
259 264 269 274	
gat gtt ttt aat agg att tgg aag atg ctt tca gaa ata tgg cat agg	1041
Asp Val Phe Asn Arg Ile Trp Lys Met Leu Ser Glu Ile Trp His Arg	
275 280 285 290	
ttt ttg tcg aaa tgt aag ttt tat tct tcc taa tttactgt gatttgtaa	1092

Phe Leu Ser Lys Cys Lys Phe Tyr Ser Ser \*  
 291 296 301

tggatgaatt gtattttgca aagatagtta gagaaatacc tccttcccct tagctttatt 1152  
 aaggatcat tgataaataa aaataaaata tgtttaatgt atataatgtg atttttaaat 1212  
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 Met Asp Pro Val Pro Gly Thr Asp Ser Ala Pro  
 1 5  
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 Leu Ala Gly Leu Ala Trp Ser Ser Ala Ser Ala Pro Pro Pro Arg Gly  
 12 17 22 27  
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 Phe Ser Ala Ile Ser Cys Thr Val Glu Gly Ala Pro Ala Ser Phe Gly  
 28 33 38 43  
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 Lys Ser Phe Ala Gln Lys Ser Gly Tyr Phe Leu Cys Leu Ser Ser Leu  
 44 49 54 59  
 ggc agc cta gag aac ccg cag gag aac gtg gtg gcc gat atc cag atc 301  
 Gly Ser Leu Glu Asn Pro Gln Glu Asn Val Val Ala Asp Ile Gln Ile  
 60 65 70 75  
 gtg gtg gac aag agc ccc ctg ccg ctg ggc ttc tcc ccc gtc tgc gac 349  
 Val Val Asp Lys Ser Pro Leu Pro Leu Gly Phe Ser Pro Val Cys Asp  
 76 81 86 91  
 ccc atg gat tcc aag gcc tct gtg tcc aag aag aaa cgc atg tgt gtg 397  
 Pro Met Asp Ser Lys Ala Ser Val Ser Lys Lys Lys Arg Met Cys Val  
 92 97 102 107  
 aag ctg ttg ccc ctg gga gcc acg gac acg gct gtg ttt gat gtc cgg 445  
 Lys Leu Leu Pro Leu Gly Ala Thr Asp Thr Ala Val Phe Asp Val Arg  
 108 113 118 123

ctg agt ggg aag acc aag aca gtg cct gga tac ctt cga ata ggg gac	493
Leu Ser Gly Lys Thr Lys Thr Val Pro Gly Tyr Leu Arg Ile Gly Asp	
124 129 134 139	
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Met Gly Gly Phe Ala Ile Trp Cys Lys Lys Ala Lys Ala Pro Arg Pro	
140 145 150 155	
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Val Pro Lys Pro Arg Gly Leu Ser Arg Asp Met Gln Gly Leu Ser Leu	
156 161 166 171	
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Asp Ala Ala Ser Gln Pro Ser Lys Gly Gly Leu Leu Glu Arg Thr Ala	
172 177 182 187	
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Ser Arg Leu Gly Ser Arg Ala Ser Thr Leu Arg Arg Asn Asp Ser Ile	
188 193 198 203	
tac gag gcc tcc agc ctc tat ggc atc tca gcc atg gat ggg gtt ccc	733
Tyr Glu Ala Ser Ser Leu Tyr Gly Ile Ser Ala Met Asp Gly Val Pro	
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Phe Thr Leu His Pro Arg Phe Glu Gly Lys Ser Cys Ser Pro Leu Ala	
220 225 230 235	
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Phe Ser Ala Phe Gly Asp Leu Thr Ile Lys Ser Leu Ala Asp Ile Glu	
236 241 246 251	
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Glu Glu Tyr Asn Tyr Gly Phe Val Val Glu Lys Thr Ala Ala Ala Arg	
252 257 262 267	
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Leu Pro Pro Ser Val Ser *	
268 273	
ctccacctcc ccgccagcct gggggggccac cccccctcac tgcacctctgg gaaccttcgc	990
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ctggacagaa gccagtgcct ttaagtcatt tgtgtcaaaa ccctctgggg tccggaggct	1170
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Pro Asn Asp Gln Ala Gln Arg Asp Ile Ile Phe Glu Leu Arg Arg Ile  
7 12 17 22

gca ttt gac gca gag tct gat cct agc aat gcc cct ggg agt ggg acc 151  
Ala Phe Asp Ala Glu Ser Asp Pro Ser Asn Ala Pro Gly Ser Gly Thr  
23 28 33 38

gaa aaa cgc aaa gcc atg tac aca aag gac tac aaa atg ctg gga ttt 199  
Glu Lys Arg Lys Ala Met Tyr Thr Lys Asp Tyr Lys Met Leu Gly Phe  
39 44 49 54

acc aac cac atc aat cca gcc atg gac ttt acc cag act cct cct gga 247  
Thr Asn His Ile Asn Pro Ala Met Asp Phe Thr Gln Thr Pro Pro Gly  
55 60 65 70

atg ctg gcc ttg gac aac atg ctg tac ttg gct aaa gtc cac cag gac 295  
Met Leu Ala Leu Asp Asn Met Leu Tyr Leu Ala Lys Val His Gln Asp  
71 76 81 86

acc tac atc cgg att gtc ttg gag aac agt agc cgg gaa gac aaa cat 343  
Thr Tyr Ile Arg Ile Val Leu Glu Asn Ser Ser Arg Glu Asp Lys His  
87 92 97 102

gaa tgc ccc ttt ggc cgc agt gcc att gag ctc acc aaa atg ctc tgt 391  
Glu Cys Pro Phe Gly Arg Ser Ala Ile Glu Leu Thr Lys Met Leu Cys  
103 108 113 118

gaa atc ctg cag gtt ggg gaa cta cca aat gaa gga cgc aat gac tac 439  
Glu Ile Leu Gln Val Gly Glu Leu Pro Asn Glu Gly Arg Asn Asp Tyr  
119 124 129 134

cac ccg atg ttc ttt acc cat gac cga gcc ttt gaa gag ctc ttt gga 487  
His Pro Met Phe Phe Thr His Asp Arg Ala Phe Glu Glu Leu Phe Gly  
135 140 145 150

atc tgc atc cag ctg ttg aac aag acc tgg aag gag atg agg gca aca 535  
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151 156 161 166

gca gag gac ttc aac aag gtt atg caa gtc gtc cga gag caa atc act 583  
Ala Glu Asp Phe Asn Lys Val Met Gln Val Arg Glu Gln Ile Thr  
167 172 177 182

cga gct ttg ccc tcc aaa ccc aac tct ttg gat cag ttc aag agc aaa 631  
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183	188	193	198	
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Leu Arg Ser Leu Ser	Tyr Ser Glu Ile Leu	Arg Leu Arg Gln Ser	Glu	
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Arg Met Ser Gln Asp	Asp Phe Gln Ser Pro	Pro Ile Val Glu Leu	Arg	
215	220	225	230	
gag aag atc cag ccc	gag atc ctt gag ctg	atc aag cag cag cgc	ctg	775
Glu Lys Ile Gln Pro	Glu Ile Leu Glu Leu	Ile Lys Gln Gln Arg	Leu	
231	236	241	246	
aac cgg ctc tgt gag	ggc agc agc ttc cga	aag att ggg aac cgc	cga	823
Asn Arg Leu Cys Glu	Gly Ser Ser Phe Arg	Lys Ile Gly Asn Arg	Arg	
247	252	257	262	
agg caa gaa cgg ttc	tgg tac tgc cgg ttg	gca ctg aac cac aag	gtc	871
Arg Gln Glu Arg Phe	Trp Tyr Cys Arg Leu	Ala Leu Asn His Lys	Val	
263	268	273	278	
ctt cac tat ggt gag	ttg gat gac aac cca	caa ggg gag gtg aca	ttt	919
Leu His Tyr Gly Asp	Leu Asp Asp Asn Pro	Gln Gly Glu Val Thr	Phe	
279	284	289	294	
gaa tcc ctg cag gag	aaa att cct gtt gca	gac att aag gcc att	gtc	967
Glu Ser Leu Gln Glu	Lys Ile Pro Val Ala	Asp Ile Lys Ala Ile	Val	
295	300	305	310	
act ggg aaa gat tgt	ccc cac atg aaa gag	aaa agt gct ctg aaa	cag	1015
Thr Gly Lys Asp Cys	Pro His Met Lys Glu	Lys Ser Ala Leu Lys	Gln	
311	316	321	326	
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Asn Lys Glu Val Leu	Glu Leu Ala Phe Ser	Ile Leu Tyr Asp Pro	Asp	
327	332	337	342	
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Glu Thr Leu Asn Phe	Ile Ala Pro Asn Lys	Tyr Glu Tyr Cys Ile	Trp	
343	348	353	358	
att gac ggc ctc agt	gcc ctt ctg ggg aag	gac atg tcc agt gag	ctg	1159
Ile Asp Gly Leu Ser	Ala Leu Leu Gly Lys	Asp Met Ser Ser Glu	Leu	
359	364	369	374	
acc aag agt gac ctg	gac acc ctg ctg agc	atg gag atg aag ctg	cgg	1207
Thr Lys Ser Asp Leu	Asp Thr Leu Leu Ser	Met Glu Met Lys Leu	Arg	
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ctc ctg gac ctg gag	aac atc cag att ccc	gaa gcc cca ccc ccc	atc	1255
Leu Leu Asp Leu Glu	Asn Ile Gln Ile Pro	Glu Ala Pro Pro Pro	Ile	
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Pro Lys Glu Pro Ser	Ser Tyr Asp Phe Val	Tyr His Tyr Gly *		
407	412	417		

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Asp Ile Lys Gly Glu Thr Cys Ser Ala Lys Gln His Leu Asp Ser His	
107 112 117 122	
cgg aat ggt gaa acc aaa gca gac gac agt tca aac aaa gag gcc gcg	796
Arg Asn Gly Glu Thr Lys Ala Asp Asp Ser Ser Asn Lys Glu Ala Ala	
123 128 133 138	
gag gag aag ccg gag gag gac aac gac tac cac cgc agc gac gag cag	844
Glu Glu Lys Pro Glu Glu Asp Asn Asp Tyr His Arg Ser Asp Glu Gln	
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Val Ser Ile Cys Leu Glu Cys Asn Ser Ser Lys Leu Arg Gly Leu Lys	
155 160 165 170	
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Arg Lys Trp Ile Arg Cys Ser Ala Gln Ala Thr Val Leu His Leu Lys	
171 176 181 186	
aag ttc atc gcc aaa aaa ctc aac ctt tca tcc ttt aac gag ctg gac	988
Lys Phe Ile Ala Lys Lys Leu Asn Leu Ser Ser Phe Asn Glu Leu Asp	
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Ile Leu Cys Asn Glu Glu Ile Leu Gly Lys Asp His Thr Leu Lys Phe	
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Val Val Val Thr Arg Trp Arg Phe Lys Lys Ala Pro Leu Leu Leu His	
219 224 229 234	
tac aga ccc aag atg gac ttg ctg tga atggt gccacacagc gcccacagac	1136
Tyr Arg Pro Lys Met Asp Leu Leu *	
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Glu Leu Tyr Ser Lys Lys Ala Leu Arg Thr Val Tyr Glu Arg Leu Ala  
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Tyr Glu Val Ile Asn Ile Gln Ala Thr Gln Ser Leu Phe Ser Asn Leu				
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 gaaccacccg ttaagggtgtc ttctcttttag ggatggtgag gttggaaaaa ggctcctgta 180  
 accctcctcc agg atg aac cac ctg cca gaa gac atg gag aac gct ctc 229  
 Met Asn His Leu Pro Glu Asp Met Glu Asn Ala Leu  
 1 5 10  
 acc ggg agc cag agc tcc cat gct tct ctg cgc aat atc cat tcc atc 277  
 Thr Gly Ser Gln Ser Ser His Ala Ser Leu Arg Asn Ile His Ser Ile  
 13 18 23 28  
 aac ccc aca caa ctc atg gcc agg att gag tcc tat gaa gga agg gaa 325  
 Asn Pro Thr Gln Leu Met Ala Arg Ile Glu Ser Tyr Glu Gly Arg Glu  
 29 34 39 44

aag aaa ggc ata tct gat gtc agg agg act ttc tgt ttg ttt gtc acc	373
Lys Lys Gly Ile Ser Asp Val Arg Arg Thr Phe Cys Leu Phe Val Thr	
45 50 55 60	
ttt gac ctc tta ttc gta aca tta ctg tgg ata ata gag tta aat gtg	421
Phe Asp Leu Leu Phe Val Thr Leu Leu Trp Ile Ile Glu Leu Asn Val	
61 66 71 76	
aat gga ggc att gag aac aca tta gag aag gag gtg atg cag tat gac	469
Asn Gly Gly Ile Glu Asn Thr Leu Glu Lys Glu Val Met Gln Tyr Asp	
77 82 87 92	
tac tat tct tca tat ttt gat ata ttt ctt ctg gca gtt ttt cga ttt	517
Tyr Tyr Ser Ser Tyr Phe Asp Ile Phe Leu Leu Ala Val Phe Arg Phe	
93 98 103 108	
aaa gtg tta ata ctt gca tat gct gtg tgc aga ctg cgc cat tgg tgg	565
Lys Val Leu Ile Leu Ala Tyr Ala Val Cys Arg Leu Arg His Trp Trp	
109 114 119 124	
gca ata gcg ttg aca acg gca gtg acc agt gcc ttt tta cta gca aaa	613
Ala Ile Ala Leu Thr Thr Ala Val Thr Ser Ala Phe Leu Leu Ala Lys	
125 130 135 140	
gtg atc ctt tcg aag ctt ttc tct caa ggg gct ttt ggc tat gtg ctg	661
Val Ile Leu Ser Lys Leu Phe Ser Gln Gly Ala Phe Gly Tyr Val Leu	
141 146 151 156	
ccc atc att tca ttc atc ctt gcc tgg att gag acg tgg ttc ctg gat	709
Pro Ile Ile Ser Phe Ile Leu Ala Trp Ile Glu Thr Trp Phe Leu Asp	
157 162 167 172	
ttc aaa gtg tta cct caa gaa gca gaa gaa gaa aac aga ctc ctg ata	757
Phe Lys Val Leu Pro Gln Glu Ala Glu Glu Glu Asn Arg Leu Leu Ile	
173 178 183 188	
gtt cag gat gct tca gag agg gca gca ctt ata cct ggt ggt ctt tct	805
Val Gln Asp Ala Ser Glu Arg Ala Ala Leu Ile Pro Gly Gly Leu Ser	
189 194 199 204	
gat ggt cag ttt tat tcc cct cct gaa tcc gaa gca gga tct gaa gaa	853
Asp Gly Gln Phe Tyr Ser Pro Pro Glu Ser Glu Ala Gly Ser Glu Glu	
205 210 215 220	
gct gaa gaa aaa cag gac agt gag aaa cca ctt tta gaa cta tga gta	901
Ala Glu Glu Lys Gln Asp Ser Glu Lys Pro Leu Leu Glu Leu *	
221 226 231	
ctacttttgt taaatgtgaa aaaccctcac agaaagtcac cgaggcaaaa agaggcaggc	961
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aacagctaataaagatttat ttattgtaatacctcacaga cgttgtagca tatccatgca	1081
catttagttg cctgcctgtg gctggtaagg taatgtcatg attcatcctc tottcagtga	1141
gactgagcct gatgtgttaa caaatagggtg aagaaagtct tgtgctgtat tcctaataca	1201

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tctacatttc ccttggtttt taactcatgc acatgtgctc tttgtacagt tttaaaaagt 1381  
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gtcaccagac atttgtatta tttttatcat gaaatcatgt ttttctctga ttgttctgaa 1561  
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gaaccacccg ttaaggtgtc ttctcttttag ggatggtgag gttggaaaaa ggctcctgta 180  
accctcctcc agg atg aac cac ctg cca gaa gac atg gag aac gct ctc 229  
Met Asn His Leu Pro Glu Asp Met Glu Asn Ala Leu  
1 5 10  
acc ggg agc cag agc tcc cat gct tct ctg cgc aat atc cat tcc atc 277  
Thr Gly Ser Gln Ser Ser His Ala Ser Leu Arg Asn Ile His Ser Ile  
13 18 23 28  
aac ccc aca caa ctc atg gcc agg att gag tcc tat gaa gga agg gaa 325  
Asn Pro Thr Gln Leu Met Ala Arg Ile Glu Ser Tyr Glu Gly Arg Glu  
29 34 39 44  
aag aaa ggc ata tct gat gtc agg agg act ttc tgt ttg ttt gtc acc 373  
Lys Lys Gly Ile Ser Asp Val Arg Arg Thr Phe Cys Leu Phe Val Thr  
45 50 55 60  
ttt gac ctc tta ttc gta aca tta ctg tgg ata ata gag tta aat gtg 421  
Phe Asp Leu Leu Phe Val Thr Leu Leu Trp Ile Ile Glu Leu Asn Val  
61 66 71 76  
aat gga ggc att gag aac aca tta gag aag gag gtg atg cag tat gac 469

Year	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
Population	1,000,000	1,050,000	1,100,000	1,150,000	1,200,000	1,250,000	1,300,000	1,350,000	1,400,000	1,450,000	1,500,000	1,550,000	1,600,000	1,650,000	1,700,000	1,750,000	1,800,000	1,850,000	1,900,000	1,950,000	2,000,000	2,050,000	2,100,000	2,150,000	2,200,000	2,250,000	2,300,000	2,350,000	2,400,000	2,450,000	2,500,000	2,550,000	2,600,000	2,650,000	2,700,000	2,750,000	2,800,000	2,850,000	2,900,000	2,950,000	3,000,000	3,050,000	3,100,000	3,150,000	3,200,000	3,250,000	3,300,000	3,350,000	3,400,000	3,450,000	3,500,000	3,550,000	3,600,000	3,650,000	3,700,000	3,750,000	3,800,000	3,850,000	3,900,000	3,950,000	4,000,000	4,050,000	4,100,000	4,150,000	4,200,000	4,250,000	4,300,000	4,350,000	4,400,000	4,450,000	4,500,000	4,550,000	4,600,000	4,650,000	4,700,000	4,750,000	4,800,000	4,850,000	4,900,000	4,950,000	5,000,000	5,050,000	5,100,000	5,150,000	5,200,000	5,250,000	5,300,000	5,350,000	5,400,000	5,450,000	5,500,000	5,550,000	5,600,000	5,650,000	5,700,000	5,750,000	5,800,000	5,850,000	5,900,000	5,950,000	6,000,000	6,050,000	6,100,000	6,150,000	6,200,000	6,250,000	6,300,000	6,350,000	6,400,000	6,450,000	6,500,000	6,550,000	6,600,000	6,650,000	6,700,000	6,750,000	6,800,000	6,850,000	6,900,000	6,950,000	7,000,000	7,050,000	7,100,000	7,150,000	7,200,000	7,250,000	7,300,000	7,350,000	7,400,000	7,450,000	7,500,000	7,550,000	7,600,000	7,650,000	7,700,000	7,750,000	7,80																																																																

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gggatggtta attcttggtt tgggtgcttt tcttcaccgc tctaaggaaac taccacagtc 180  
agaaggtgca ttcttactgc gatcttttta tttgctacct tgggcttaag gagcctgcct 240  
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ggtgacatgg atggggatga cttcctgggc taactcttct cttgctaaag gatgattttt 360  
caccaccttg aatgcccata attaaaacat aaacaagaaa atagatatct gaggagaatg 420  
cagttgaaac taattttgtg gatagagaaa ctggttgaac tgctttacaa agtattttta 480  
cagccacct gaggatattg accataagga ctcatatctc attacaagaa gcatc atg 538  
Met  
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gcc gag cca gac tac ata gaa gat gac aat cct gaa ctc att agg cct 586  
Ala Glu Pro Asp Tyr Ile Glu Asp Asp Asn Pro Glu Leu Ile Arg Pro  
2 7 12 17

cag aaa ctg atc aat cct gta aaa acc tcc cgg aac cat caa gat ctt 634  
Gln Lys Leu Ile Asn Pro Val Lys Thr Ser Arg Asn His Gln Asp Leu  
18 23 28 33

cac aga gaa ctt ctt atg aat caa aaa agg ggt ctt gct cct cag aac 682  
His Arg Glu Leu Leu Met Asn Gln Lys Arg Gly Leu Ala Pro Gln Asn  
34 39 44 49

aaa cca gaa ttg cag aag gtg atg gaa aaa aga aaa cga gac caa gta 730  
Lys Pro Glu Leu Gln Lys Val Met Glu Lys Arg Lys Arg Asp Gln Val  
50 55 60 65

ata aag cag aag gaa gaa gaa gca cag aag aag aaa tct gac ttg gaa 778  
Ile Lys Gln Lys Glu Glu Glu Ala Gln Lys Lys Lys Ser Asp Leu Glu  
66 71 76 81

ata gag cta tta aaa cgg cag cag aag ttg gag cag ctt gaa ctt gag	826
Ile Glu Leu Leu Lys Arg Gln Gln Lys Leu Glu Gln Leu Glu Leu Glu	
82 87 92 97	
aag cag aaa ttg caa gaa gag caa gaa aat gcc ccc gag ttt gtg aag	874
Lys Gln Lys Leu Gln Glu Glu Gln Glu Asn Ala Pro Glu Phe Val Lys	
98 103 108 113	
gtg aaa ggc aat ctc agg aga aca ggc caa gaa gtc gcc caa gcc cag	922
Val Lys Gly Asn Leu Arg Arg Thr Gly Gln Glu Val Ala Gln Ala Gln	
114 119 124 129	
gag tcc tag gctgagg ctgcaccaag acctcgtgtg tcacccca gagctgtctg	978
Glu Ser *	
130	
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tttgacttgc agtaggattt gggttgattt tctacgacg tgggtggatg ccttgctgtg	1098
gacagttgca gttcctattc gccaaatgaa gggcagtgcc ccgcacgtaa gttggaatga	1158
tggacctgtg ttcagagact taacagaacc aacaagcaaa acaagtgaga acaggaaaaa	1218
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tctttttggt atctgttaga taattgagat cacctagaaa tgcgtttaat ctgttcactc	1398
actgtaaatt ttgaggaccc agaattgtct tgtttaattt atactttcac ccctgttgca	1458
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cttgctgac tagttctttc agatggaata accttccagt cccttagaga gtggaactag	1758
tccatataac ccagcttcag tagcaaaagt agaagccgcc acatcttttc atttctccaa	1818
gaggagagtg ggggaagggtc cgtcgacgcg gccgcgaatt cggatcctcg agagatctct	1878
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at	1940

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10

28

44

60

76

92

108

124

140

156

172



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Glu Tyr Ser Thr Lys Gln Leu Thr Asn Leu Val Asn Val Cys Leu Gly	
173 178 183 188	
tcc cat atc aat aag aaa gca aga caa aaa ctt cta gca gct ata gat	864
Ser His Ile Asn Lys Lys Ala Arg Gln Lys Leu Leu Ala Ala Ile Asp	
189 194 199 204	
gat ata gac aga cct aaa aga taa tgaacacagc tctctttcct caatggcatt	918
Asp Ile Asp Arg Pro Lys Arg *	
205 210	
gacctcact caacatatat gacctgaaag ccagtttttt tatgcacttc tgacaactat	978
ctgctaagaa aactttgtgc atgttttttt gactggaaag tggaaaatat tgaaatgtgt	1038
gtggtgttct catgactttt atatgctgtg gtctcttcaa cttttggtct catttggtgt	1098
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acacatgtaa gtaaaatagt tgaaaaatca gtatgttctc tgtttttaaa atgtcaaagt	1398
ttatgtcagg gttaatttag ttataacaaa gtgatcataa tggtgaaatt taataaatat	1458
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 <212> DNA  
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 <222> (95)..(766)

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Met Lys Phe Val Pro Cys	
1	
ctc ctg ctg gtg acc ttg tcc tgc ctg ggg act ttg ggt cag gcc ccg	160
Leu Leu Leu Val Thr Leu Ser Cys Leu Gly Thr Leu Gly Gln Ala Pro	
7 12 17 22	
agg caa aag caa gga agc act ggg gag gaa ttc cat ttc cag act gga	208

Arg Gln Lys Gln Gly Ser Thr Gly Glu Glu Phe His Phe Gln Thr Gly	
23 28 33 38	
ggg aga gat tcc tgc act atg cgt ccc agc agc ttg ggg caa ggt gct	256
Gly Arg Asp Ser Cys Thr Met Arg Pro Ser Ser Leu Gly Gln Gly Ala	
39 44 49 54	
gga gaa gtc tgg ctt cgc gtc gac tgc cgc aac aca gac cag acc tac	304
Gly Glu Val Trp Leu Arg Val Asp Cys Arg Asn Thr Asp Gln Thr Tyr	
55 60 65 70	
tgg tgt gag tac agg ggg cag ccc agc atg tgc cag gct ttt gct gct	352
Trp Cys Glu Tyr Arg Gly Gln Pro Ser Met Cys Gln Ala Phe Ala Ala	
71 76 81 86	
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Asp Pro Lys Ser Tyr Trp Asn Gln Ala Leu Gln Glu Leu Arg Arg Leu	
87 92 97 102	
cac cat gcg tgc cag ggg gcc ccg gtg ctt agg cca tcc gtg tgc agg	448
His His Ala Cys Gln Gly Ala Pro Val Leu Arg Pro Ser Val Cys Arg	
103 108 113 118	
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Glu Ala Gly Pro Gln Ala His Met Gln Gln Val Thr Ser Ser Leu Lys	
119 124 129 134	
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Gly Ser Pro Glu Pro Asn Gln Gln Pro Glu Ala Gly Thr Pro Ser Leu	
135 140 145 150	
agg ccc aag gcc aca gtg aaa ctc aca gaa gca aca cag ctg gga aag	592
Arg Pro Lys Ala Thr Val Lys Leu Thr Glu Ala Thr Gln Leu Gly Lys	
151 156 161 166	
gac tcg atg gaa gag ctg gga aaa gcc aaa ccc acc acc cga ccc aca	640
Asp Ser Met Glu Glu Leu Gly Lys Ala Lys Pro Thr Thr Arg Pro Thr	
167 172 177 182	
gcc aaa cct acc cag cct gga ccc agg ccc gga ggg aat gag gaa gca	688
Ala Lys Pro Thr Gln Pro Gly Pro Arg Pro Gly Gly Asn Glu Glu Ala	
183 188 193 198	
aag aag aag gcc tgg gaa cat tgt tgg aaa ccc ttc cag gcc ctg tgc	736
Lys Lys Lys Ala Trp Glu His Cys Trp Lys Pro Phe Gln Ala Leu Cys	
199 204 209 214	
gcc ttt ctc atc agc ttc ttc cga ggg tga c aggtgaaaga cccctacaga	787
Ala Phe Leu Ile Ser Phe Phe Arg Gly *	
215 220	
tctgacctct cctgacaga caaccatctc tttttatatt atgccgcttt caatccaacg	847
ttctcacact ggaagaagag agtttctaata cagatgcaac ggcccaaatt cttgatctgc	907
agcttctctg aagtttgga aagaaacctt cctttctgga gtttgcagag ttcagcaata	967

tgataggggaa caggtgctga tgggcccag agtgacaagc atacacaact acttattatc 1027  
 tgtagaagtt ttgctttggt gatctgagcc ttctatgaaa gtttaaataat gtaacgcatt 1087  
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 ccggaccogg attcccggtt cgaccacgc gttcgcaaag gagctattga aggtcggaga 180  
 tttctccctt tgtgtcgggc cctaccaaaa tacagcagac acc atg gaa aac ctc 235  
 Met Glu Asn Leu  
 1  
 agt aaa gag cct ttg gcc tcc ttt gtt tca gaa tcc ttt gat att tct 283  
 Ser Lys Glu Pro Leu Ala Ser Phe Val Ser Glu Ser Phe Asp Ile Ser  
 5 10 15 20  
 gct tgt gga ata gcc aca gag cac gta aaa att gat aac agt ggg gag 331  
 Ala Cys Gly Ile Ala Thr Glu His Val Lys Ile Asp Asn Ser Gly Glu  
 21 26 31 36  
 ggg ctc acg gct gag gct ggt tct gaa acc cta agc aga gat gga gag 379  
 Gly Leu Thr Ala Glu Ala Gly Ser Glu Thr Leu Ser Arg Asp Gly Glu  
 37 42 47 52  
 gtc ggt gtg aat tcc gac atg cac tat gaa ctc tct gga gat tct gat 427  
 Val Gly Val Asn Ser Asp Met His Tyr Glu Leu Ser Gly Asp Ser Asp  
 53 58 63 68  
 cta gac ctg ctt ggt gat tgt aga aat ccc aga ctg gat ttg gag gat 475  
 Leu Asp Leu Leu Gly Asp Cys Arg Asn Pro Arg Leu Asp Leu Glu Asp  
 69 74 79 84  
 tct tat act tta aga ggt agt tac acc agg aaa aaa gat gtt ccc aca 523

Ser	Tyr	Thr	Leu	Arg	Gly	Ser	Tyr	Thr	Arg	Lys	Lys	Asp	Val	Pro	Thr		
85					90					95					100		
gat	ggc	tat	gag	tcg	tcg	ttg	aac	ttc	cac	aac	aac	aac	caa	gag	gac	571	
Asp	Gly	Tyr	Glu	Ser	Ser	Leu	Asn	Phe	His	Asn	Asn	Asn	Gln	Glu	Asp		
101					106					111					116		
tgg	ggc	tgc	tct	agc	tgg	gtt	cca	ggc	atg	gag	acg	agc	ctc	cct	ccc	619	
Trp	Gly	Cys	Ser	Ser	Trp	Val	Pro	Gly	Met	Glu	Thr	Ser	Leu	Pro	Pro		
117					122					127					132		
ggg	cac	tgg	act	gct	gcg	gta	aag	aaa	gaa	gag	aag	tgt	gtg	ccg	cct	667	
Gly	His	Trp	Thr	Ala	Ala	Val	Lys	Lys	Glu	Glu	Lys	Cys	Val	Pro	Pro		
133					138					143					148		
tac	gtc	caa	atc	cga	gat	ctc	cac	ggg	atc	ctc	agg	act	tac	gcc	aac	715	
Tyr	Val	Gln	Ile	Arg	Asp	Leu	His	Gly	Ile	Leu	Arg	Thr	Tyr	Ala	Asn		
149					154					159					164		
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Phe	Ser	Ile	Thr	Lys	Glu	Leu	Lys	Asp	Thr	Met	Arg	Thr	Ser	His	Gly		
165					170					175					180		
ctg	agg	agg	cac	ccg	agt	ttc	agt	gca	aac	tgt	ggc	ctg	ccc	agc	tcc	811	
Leu	Arg	Arg	His	Pro	Ser	Phe	Ser	Ala	Asn	Cys	Gly	Leu	Pro	Ser	Ser		
181					186					191					196		
tgg	aca	agc	act	tgg	cag	gtg	gca	gac	gac	ctc	acc	cag	aac	act	tta	859	
Trp	Thr	Ser	Thr	Trp	Gln	Val	Ala	Asp	Asp	Leu	Thr	Gln	Asn	Thr	Leu		
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gac	ctg	gag	tat	ctg	cgt	ttt	gca	cat	aaa	cta	aaa	cag	acc	ata	aag	907	
Asp	Leu	Glu	Tyr	Leu	Arg	Phe	Ala	His	Lys	Leu	Lys	Gln	Thr	Ile	Lys		
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Asn	Gly	Asp	Ser	Gln	His	Ser	Ala	Ser	Ser	Ala	Asn	Val	Phe	Pro	Lys		
229					234					239					244		
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Glu	Ser	Pro	Thr	Gln	Ile	Ser	Ile	Gly	Ala	Phe	Pro	Ser	Thr	Lys	Ile		
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Ser	Glu	Ala	Pro	Phe	Leu	His	Pro	Ala	Pro	Arg	Ser	Arg	Ser	Pro	Leu		
261					266					271					276		
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Leu	Val	Thr	Val	Val	Glu	Ser	Asp	Pro	Arg	Pro	Gln	Gly	Gln	Pro	Arg		
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Arg	Gly	Tyr	Thr	Ala	Ser	Ser	Leu	Asp	Ser	Ser	Ser	Ser	Trp	Arg	Glu		
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Arg	Cys	Ser	His	Asn	Arg	Asp	Leu	Arg	Asn	Ser	Gln	Arg	Asn	His	Thr		

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Val Ser Phe His Leu Asn Lys Leu Lys Tyr Asn Ser Thr Val Lys Glu				
325	330	335	340	
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Ser Arg Asn Asp Ile Ser Leu Ile Leu Asn Glu Tyr Ala Glu Phe Asn				
341	346	351	356	
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Lys Val Met Lys Asn Ser Asn Gln Phe Ile Phe Gln Asp Lys Glu Leu				
357	362	367	372	
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Asn Asp Val Ser Gly Glu Ala Thr Ala Gln Glu Met Tyr Leu Pro Phe				
373	378	383	388	
cca gga cgg tca gcc tcc tat gaa gac ata atc ata gac gtg tgc acc				1435
Pro Gly Arg Ser Ala Ser Tyr Glu Asp Ile Ile Ile Asp Val Cys Thr				
389	394	399	404	
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Asn Leu His Val Lys Leu Arg Ser Val Val Lys Glu Ala Cys Lys Ser				
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acc ttc ctg ttc tac ctt gtc gaa aca gaa gac aaa tca ttc ttt gta				1531
Thr Phe Leu Phe Tyr Leu Val Glu Thr Glu Asp Lys Ser Phe Phe Val				
421	426	431	436	
aga aca aag aac ctt ctg agg aaa gga ggc cat aca gaa att gaa cct				1579
Arg Thr Lys Asn Leu Leu Arg Lys Gly Gly His Thr Glu Ile Glu Pro				
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Gln His Phe Cys Gln Ala Phe His Arg Glu Asn Asp Thr Leu Ile Ile				
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Ile Ile Arg Asn Glu Asp Ile Ser Ser His Leu His Gln Ile Pro Ser				
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Ser Pro Gly Asp Val Leu Asp His Thr Tyr Gln Glu Leu Phe Arg Ala				
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Val Gln Leu Lys Glu Ile Ile Lys Ile Leu Glu Lys Leu Asn Gly Asn				
533	538	543	548	

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Gly Arg Trp Lys Trp Leu Leu His Tyr Arg Glu Asn Lys Lys Leu Lys	
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Glu Asp Glu Arg Val Asp Ser Thr Ala His Lys Lys Asn Ile Met Leu	
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Lys Ser Phe Gln Ser Ala Asn Ile Ile Glu Leu Leu His Tyr His Gln	
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Cys Asp Ser Arg Ser Ser Thr Lys Ala Glu Ile Leu Lys Cys Leu Leu	
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Asn Leu Gln Ile Gln His Ile Asp Ala Arg Phe Ala Val Leu Leu Thr	
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gac aag cct act atc ccc aga gaa gtc ttt gaa aat aat gga atc ctt	2155
Asp Lys Pro Thr Ile Pro Arg Glu Val Phe Glu Asn Asn Gly Ile Leu	
629 634 639 644	
gtt aca gat gta aat aac ttt ata gaa aac ata gaa aaa ata gca gct	2203
Val Thr Asp Val Asn Asn Phe Ile Glu Asn Ile Glu Lys Ile Ala Ala	
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Pro Phe Arg Ser Ser Tyr Trp *	
661 666	
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aggcctcctt cctccctctt gccactcccc ctccctttcc cgctcttctt gccacccgg      180
ccggcagaga gaggctggat acgaagcagg cgggcttcag agtgggttgg aaaa atg      237
                                         Met
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Glu Val Pro Arg Leu Asp His Ala Leu Asn Ser Pro Thr Ser Pro Cys
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gag gag gtg atc aaa aac ctc agc ctg gag gcc att cag ctg tgc gac      333
Glu Glu Val Ile Lys Asn Leu Ser Leu Glu Ala Ile Gln Leu Cys Asp
  18              23              28              33

cgg gac ggg aac aaa tca caa gac agt ggc ata gca gag atg gaa gaa      381
Arg Asp Gly Asn Lys Ser Gln Asp Ser Gly Ile Ala Glu Met Glu Glu
  34              39              44              49

ctt cct gta cca cat aac atc aaa ata agc aat ata acg tgt gac tca      429
Leu Pro Val Pro His Asn Ile Lys Ile Ser Asn Ile Thr Cys Asp Ser
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ttc aag att tca tgg gaa atg gat tca aaa tca aag gat cgc att aca      477
Phe Lys Ile Ser Trp Glu Met Asp Ser Lys Ser Lys Asp Arg Ile Thr
  66              71              76              81

cac tat ttt att gac ctc aac aag aaa gag aac aag aac tcc aat aaa      525
His Tyr Phe Ile Asp Leu Asn Lys Lys Glu Asn Lys Asn Ser Asn Lys
  82              87              92              97

ttt aaa cac aag gat gtt ccc aca aaa ttg gtg gca aaa gct gtt ccc      573
Phe Lys His Lys Asp Val Pro Thr Lys Leu Val Ala Lys Ala Val Pro
  98              103              108              113

ttg cct atg act gtc cgt gga cac tgg ttt tta agc cca aga act gaa      621
Leu Pro Met Thr Val Arg Gly His Trp Phe Leu Ser Pro Arg Thr Glu
  114              119              124              129

tat aca gta gca gtg cag act gcc tca aaa caa gtt gat ggt gat tat      669
Tyr Thr Val Ala Val Gln Thr Ala Ser Lys Gln Val Asp Gly Asp Tyr

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Val Val Ser Glu Trp Ser Glu Ile Ile Glu Phe Cys Thr Ala Asp Tyr				
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tca aaa gtt cat cta aca caa ttg ttg gag aag gct gaa gtg att gca				765
Ser Lys Val His Leu Thr Gln Leu Leu Glu Lys Ala Glu Val Ile Ala				
162	167	172	177	
gga cgc atg ctt aag ttt tct gtt ttt tat cgt aat cag cac aaa gaa				813
Gly Arg Met Leu Lys Phe Ser Val Phe Tyr Arg Asn Gln His Lys Glu				
178	183	188	193	
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Tyr Phe Asp Tyr Val Arg Glu His His Gly Asn Ala Met Gln Pro Ser				
194	199	204	209	
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Val Lys Asp Asn Ser Gly Ser His Gly Ser Pro Ile Ser Gly Lys Leu				
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Glu Gly Ile Phe Phe Ser Cys Ser Thr Glu Phe Asn Thr Gly Lys Pro				
226	231	236	241	
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Pro Gln Asp Ser Pro Tyr Gly Arg Tyr Arg Phe Glu Ile Ala Ala Glu				
242	247	252	257	
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Lys Leu Phe Asn Pro Asn Thr Asn Leu Tyr Phe Gly Asp Phe Tyr Cys				
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Met Tyr Thr Ala Tyr His Tyr Val Ile Leu Val Ile Ala Pro Val Gly				
274	279	284	289	
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Ser Pro Gly Asp Glu Phe Cys Lys Gln Arg Leu Pro Gln Leu Asn Ser				
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Lys Asp Asn Lys Phe Leu Thr Cys Thr Glu Glu Asp Gly Val Leu Val				
306	311	316	321	
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Tyr His His Ala Gln Asp Val Ile Leu Glu Val Ile Tyr Thr Asp Pro				
322	327	332	337	
gtg gat ctt tct ctg ggc acc gtg gca gaa atc act ggt cat cag ctc				1293
Val Asp Leu Ser Leu Gly Thr Val Ala Glu Ile Thr Gly His Gln Leu				
338	343	348	353	
atg agt ttg tct act gca aat gca aag aaa gat ccc agc tgc aaa acc				1341
Met Ser Leu Ser Thr Ala Asn Ala Lys Lys Asp Pro Ser Cys Lys Thr				
354	359	364	369	



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 Cys Asn Ile Ser Val Gly Arg \*  
 370 375

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 Met Leu Ser  
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 Pro Gln Arg Val Ala Ala Ala Ala Ser Arg Gly Ala Asp Asp Ala Met  
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 Glu Ser Ser Lys Pro Gly Pro Val Gln Val Val Leu Val Gln Lys Asp  
 20 25 30 35

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 Gln His Ser Phe Glu Leu Asp Glu Lys Ala Leu Ala Ser Ile Leu Leu  
 36 41 46 51

cag gac cac atc cga gat ctt gat gtg gtg gtg gtt tca gtg gct ggt 487

Gln	Asp	His	Ile	Arg	Asp	Leu	Asp	Val	Val	Val	Val	Ser	Val	Ala	Gly		
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gcc	ttc	cga	aag	ggc	aag	tcc	ttc	att	ctg	gat	ttt	atg	cta	cga	tac		535
Ala	Phe	Arg	Lys	Gly	Lys	Ser	Phe	Ile	Leu	Asp	Phe	Met	Leu	Arg	Tyr		
68					73					78					83		
tta	tat	tct	cag	aag	gaa	agt	ggc	cat	tca	aat	tgg	ttg	ggt	gac	cca		583
Leu	Tyr	Ser	Gln	Lys	Glu	Ser	Gly	His	Ser	Asn	Trp	Leu	Gly	Asp	Pro		
84					89					94					99		
gaa	gaa	ccg	tta	aca	gga	ttt	tcc	tgg	aga	ggg	gga	tct	gat	cca	gaa		631
Glu	Glu	Pro	Leu	Thr	Gly	Phe	Ser	Trp	Arg	Gly	Gly	Ser	Asp	Pro	Glu		
100					105					110					115		
acc	act	ggg	att	caa	atc	tgg	agt	gaa	gtt	ttc	act	gtg	gag	aag	cca		679
Thr	Thr	Gly	Ile	Gln	Ile	Trp	Ser	Glu	Val	Phe	Thr	Val	Glu	Lys	Pro		
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Asp	Ser	Gln	Ser	Thr	Val	Lys	Asp	Cys	Ala	Thr	Ile	Phe	Ala	Leu	Ser		
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Thr	Met	Thr	Ser	Ser	Val	Gln	Ile	Tyr	Asn	Leu	Ser	Gln	Asn	Ile	Gln		
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Glu	Asp	Asp	Leu	Gln	Gln	Leu	Gln	Leu	Phe	Thr	Glu	Tyr	Gly	Arg	Leu		
180					185					190					195		
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Val	Arg	Asp	Trp	Ser	Phe	Pro	Tyr	Glu	Tyr	Ser	Tyr	Gly	Leu	Gln	Gly		
212					217					222					227		
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228					233					238					243		
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Val	Thr	Cys	Phe	Leu	Leu	Pro	His	Pro	Gly	Leu	Gln	Val	Ala	Thr	Ser		
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cct	gac	ttt	gat	ggg	aaa	tta	aaa	gat	att	gct	ggt	gaa	ttc	aaa	gag		1159
Pro	Asp	Phe	Asp	Gly	Lys	Leu	Lys	Asp	Ile	Ala	Gly	Glu	Phe	Lys	Glu		

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Gln Leu Gln Ala Leu	Ile Pro Tyr Val Leu Asn Pro Ser Lys Leu Met			
292	297	302	307	
gaa aag gag atc aat	ggc tca aag gtc acc tgt cgg gga cta ctg gag			1255
Glu Lys Glu Ile Asn	Gly Ser Lys Val Thr Cys Arg Gly Leu Leu Glu			
308	313	318	323	
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Tyr Phe Lys Ala Tyr	Ile Lys Ile Tyr Gln Gly Glu Asp Leu Pro His			
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Pro Lys Ser Met Leu	Gln Ala Thr Ala Glu Ala Tyr Asn Leu Ala Ala			
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Ala Ala Ser Ala Lys	Asp Ile Tyr Tyr Asn Asn Met Glu Glu Val Cys			
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Cys Glu Phe Lys Gln	Leu Ala Leu Asp His Phe Lys Lys Thr Lys Lys			
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Gly Gly Ala Ile Asp	Phe Gly Ala Ala Tyr Val Leu Glu Gln Ala Ser			
500	505	510	515	

Country	Year	Population (millions)	Urban population (millions)	Urban population (%)	Population density (per sq km)	Urban population density (per sq km)
Algeria	1975	11.1	5.1	45.9	10.1	10.1
Algeria	1980	11.1	5.1	45.9	10.1	10.1
Algeria	1985	11.1	5.1	45.9	10.1	10.1
Algeria	1990	11.1	5.1	45.9	10.1	10.1
Algeria	1995	11.1	5.1	45.9	10.1	10.1
Algeria	2000	11.1	5.1	45.9	10.1	10.1
Algeria	2005	11.1	5.1	45.9	10.1	10.1
Algeria	2010	11.1	5.1	45.9	10.1	10.1
Algeria	2015	11.1	5.1	45.9	10.1	10.1
Algeria	2020	11.1	5.1	45.9	10.1	10.1
Algeria	2025	11.1	5.1	45.9	10.1	10.1
Algeria	2030	11.1	5.1	45.9	10.1	10.1
Algeria	2035	11.1	5.1	45.9	10.1	10.1
Algeria	2040	11.1	5.1	45.9	10.1	10.1
Algeria	2045	11.1	5.1	45.9	10.1	10.1
Algeria	2050	11.1	5.1	45.9	10.1	10.1
Algeria	2055	11.1	5.1	45.9	10.1	10.1
Algeria	2060	11.1	5.1	45.9	10.1	10.1
Algeria	2065	11.1	5.1	45.9	10.1	10.1
Algeria	2070	11.1	5.1	45.9	10.1	10.1
Algeria	2075	11.1	5.1	45.9	10.1	10.1
Algeria	2080	11.1	5.1	45.9	10.1	10.1
Algeria	2085	11.1	5.1	45.9	10.1	10.1
Algeria	2090	11.1	5.1	45.9	10.1	10.1
Algeria	2095	11.1	5.1	45.9	10.1	10.1
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Algeria	2130	11.1	5.1	45.9	10.1	10.1
Algeria	2135	11.1	5.1	45.9	10.1	10.1
Algeria	2140	11.1	5.1	45.9	10.1	10.1
Algeria	2145	11.1	5.1	45.9	10.1	10.1
Algeria	2150	11.1	5.1	45.9	10.1	10.1
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Algeria	2160	11.1	5.1	45.9	10.1	10.1
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Algeria	2190	11.1	5.1	45.9	10.1	10.1
Algeria	2195	11.1	5.1	45.9	10.1	10.1
Algeria	2200	11.1	5.1	45.9	10.1	10.1
Algeria	2205	11.1	5.1	45.9	10.1	10.1
Algeria	2210	11.1	5.1	45.9	10.1	10.1
Algeria	2215	11.1	5.1	45.9	10.1	10.1
Algeria	2220	11.1	5.1	45.9	10.1	10.1
Algeria	2225	11.1	5.1	45.9	10.1	10.1
Algeria	2230	11.1	5.1	45.9	10.1	10.1
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116 121 126 131	
acg cta atc ccc gtg tgc tgg acg gcg cat gcc gtc atc cgg gac ttc	486
Thr Leu Ile Pro Val Cys Trp Thr Ala His Ala Val Ile Arg Asp Phe	
132 137 142 147	
tat aac ccc ctg gtg gct gag gcc caa aag cgg gag ctg ggg gcc tcc	534
Tyr Asn Pro Leu Val Ala Glu Ala Gln Lys Arg Glu Leu Gly Ala Ser	
148 153 158 163	
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Leu Tyr Leu Gly Trp Ala Ala Ser Gly Leu Leu Leu Leu Gly Gly Gly	
164 169 174 179	
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Leu Leu Cys Cys Thr Cys Pro Ser Gly Gly Ser Gln Gly Pro Ser His	
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Tyr Met Ala Arg Tyr Ser Thr Ser Ala Pro Ala Ile Ser Arg Gly Pro	
196 201 206 211	
tct gag tac cct acc aag aat tac gtc tga	708
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cgcactgcgc tatggcccgg cgggtgtggc gggctgggag ataaaatcag ttgctcgccg	180
accgctgaaa atgttgctgg ctgtggcgct ggaaccgctg ttaagtcggg ctgctaataa	240
actggcacag cggtataaaa ggtgagggga gtttcgcaaa aattgttaaa tctcaggcgt	300
ataatggatg gcaattttca tccatagaag gacgcttac atg ttt aaa aaa ggc	354
Met Phe Lys Lys Gly	

tta ctt gct ctg gca ctg gtg ttt tca ctg ccc gtt ttc gcc gct gaa	402
Leu Leu Ala Leu Ala Leu Val Phe Ser Leu Pro Val Phe Ala Ala Glu	
6 11 16 21	
cac tgg atc gat gtt cgt gtt cca gag cag tat cag caa gag cac gtt	450
His Trp Ile Asp Val Arg Val Pro Glu Gln Tyr Gln Gln Glu His Val	
22 27 32 37	
cag ggg gcc atc aat att ccc ctg aag gaa gtg aaa gag cgc att gcc	498
Gln Gly Ala Ile Asn Ile Pro Leu Lys Glu Val Lys Glu Arg Ile Ala	
38 43 48 53	
acc gcc gtt ccg gat aaa aac gac acc gtg aaa gtg tat tgc aat gcc	546
Thr Ala Val Pro Asp Lys Asn Asp Thr Val Lys Val Tyr Cys Asn Ala	
54 59 64 69	
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Gly Arg Gln Ser Gly Gln Ala Lys Glu Ile Leu Ser Glu Met Gly Tyr	
70 75 80 85	
acc cac gtt gag aac gcc ggt ggc ctg aaa gac atc gca atg ccg aag	642
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tctgcctgag aagccaggcg ctgttcccc accccagaag agg atg gca aag gtg	175
Met Ala Lys Val	
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Ala Lys Asp Leu Asn Pro Gly Val Lys Lys Met Ser Leu Gly Gln Leu	
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cag tca gca aga ggt gtg gca tgt ttg gga tgc aag ggg acg tgt tcg	271

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Gly	Phe	Glu	Pro	His	Ser	Trp	Arg	Lys	Ile	Cys	Lys	Ser	Cys	Lys	Cys		
37					42					47					52		
agc	caa	gag	gac	cac	tgc	cta	aca	tct	gac	cta	gaa	gac	gat	cgg	aaa		367
Ser	Gln	Glu	Asp	His	Cys	Leu	Thr	Ser	Asp	Leu	Glu	Asp	Asp	Arg	Lys		
53					58					63					68		
att	ggc	cgc	ttg	ctg	atg	gac	tcc	aag	tat	tcc	acc	ctc	act	gct	cgg		415
Ile	Gly	Arg	Leu	Leu	Met	Asp	Ser	Lys	Tyr	Ser	Thr	Leu	Thr	Ala	Arg		
69					74					79					84		
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Val	Lys	Gly	Gly	Asp	Gly	Ile	Arg	Ile	Tyr	Lys	Arg	Asn	Arg	Met	Ile		
85					90					95					100		
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Met	Thr	Asn	Pro	Ile	Ala	Thr	Gly	Lys	Asp	Pro	Thr	Phe	Asp	Thr	Ile		
101					106					111					116		
acc	tac	gag	tgg	gct	ccc	cct	gga	gtc	acc	cag	aaa	ctg	gga	ctg	cag		559
Thr	Tyr	Glu	Trp	Ala	Pro	Pro	Gly	Val	Thr	Gln	Lys	Leu	Gly	Leu	Gln		
117					122					127					132		
tac	atg	gag	ctc	atc	ccc	aag	gag	aag	cag	cca	gtg	aca	ggc	aca	gag		607
Tyr	Met	Glu	Leu	Ile	Pro	Lys	Glu	Lys	Gln	Pro	Val	Thr	Gly	Thr	Glu		
133					138					143					148		
ggt	gcc	ttt	tac	cgc	cgc	cgc	cag	ctc	atg	cac	cag	ctc	ccc	atc	tat		655
Gly	Ala	Phe	Tyr	Arg	Arg	Arg	Gln	Leu	Met	His	Gln	Leu	Pro	Ile	Tyr		
149					154					159					164		
gac	cag	gat	ccc	tcg	cgc	tgc	cgt	gga	ctt	ttg	gag	aat	gag	ttg	aaa		703
Asp	Gln	Asp	Pro	Ser	Arg	Cys	Arg	Gly	Leu	Leu	Glu	Asn	Glu	Leu	Lys		
165					170					175					180		
ctg	atg	gaa	gaa	ttt	gtc	aag	caa	tat	aag	agc	gag	gcc	ctc	ggc	gtg		751
Leu	Met	Glu	Glu	Phe	Val	Lys	Gln	Tyr	Lys	Ser	Glu	Ala	Leu	Gly	Val		
181					186					191					196		
gga	gaa	gtg	gcc	ctc	ccg	ggg	cag	ggt	ggc	ttg	ccc	aag	gag	gag	ggg		799
Gly	Glu	Val	Ala	Leu	Pro	Gly	Gln	Gly	Gly	Leu	Pro	Lys	Glu	Glu	Gly		
197					202					207					212		
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Lys	Gln	Gln	Glu	Lys	Pro	Glu	Gly	Ala	Glu	Thr	Thr	Ala	Ala	Thr	Thr		
213					218					223					228		
aac	ggc	agt	ctc	agt	gac	ccg	tcc	aaa	gaa	gtg	gaa	tac	gtc	tgc	gag		895
Asn	Gly	Ser	Leu	Ser	Asp	Pro	Ser	Lys	Glu	Val	Glu	Tyr	Val	Cys	Glu		
229					234					239					244		
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Leu	Cys	Lys	Gly	Ala	Ala	Pro	Pro	Asp	Ser	Pro	Val	Val	Tyr	Ser	Asp		

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Arg Ala Gly Tyr Asn Lys Gln Trp His Pro Thr Cys Phe Val Cys Ala				
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aag tgc tcc gag ccg ctg gtg gac ctc atc tac ttc tgg aag gat ggt				1039
Lys Cys Ser Glu Pro Leu Val Asp Leu Ile Tyr Phe Trp Lys Asp Gly				
277	282	287	292	
gca ccc tgg tgc ggc cgc cat tac tgc gag agt ctg cgg ccc cgg tgc				1087
Ala Pro Trp Cys Gly Arg His Tyr Cys Glu Ser Leu Arg Pro Arg Cys				
293	298	303	308	
tcc ggc tgc gat gag ata ata ttc gct gag gac tac cag cgt gtg gaa				1135
Ser Gly Cys Asp Glu Ile Ile Phe Ala Glu Asp Tyr Gln Arg Val Glu				
309	314	319	324	
gat ctg gcc tgg cac cga aag cac ttt gtc tgt gag ggt tgt gag cag				1183
Asp Leu Ala Trp His Arg Lys His Phe Val Cys Glu Gly Cys Glu Gln				
325	330	335	340	
ctg ctg agc ggc cgg gcg tac atc gtc acc aag ggt cag ctt ctg tgc				1231
Leu Leu Ser Gly Arg Ala Tyr Ile Val Thr Lys Gly Gln Leu Leu Cys				
341	346	351	356	
cca act tgc agc aag tcc aaa cgc tcc tga a gggctgcccc cccacagcca				1282
Pro Thr Cys Ser Lys Ser Lys Arg Ser *				
357	362			
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ccgtgactcc agtgcaacgt gacgacagca tgtacgatcc ctgaatgggc ccgtgggcat      240
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tcagcgactg aaggagtgtg gactttttga atttcaagaa cagtaaagtt ggaacacagc      360
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ccaagagaga gctggggact gcctgctgtc tgccagtaca  atg aag gaa gtg gtt      895
                                         Met Lys Glu Val Val
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tat tgg tca ccc aag aag gtg gca gac tgg ctg ctg gag aat gct atg      943
Tyr Trp Ser Pro Lys Lys Val Ala Asp Trp Leu Leu Glu Asn Ala Met
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cca gaa tac tgt gag cct ctg gag cat ttc aca ggc cag gac ttg atc      991
Pro Glu Tyr Cys Glu Pro Leu Glu His Phe Thr Gly Gln Asp Leu Ile
  22                27                32                37

aac cta acc caa gag gat ttc aaa aaa ccc ccc ttg tgc cga gtc tcc      1039
Asn Leu Thr Gln Glu Asp Phe Lys Lys Pro Pro Leu Cys Arg Val Ser
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tct gac aac ggg cag cgg ctc ctg gac atg ata gaa acc ctg aaa atg      1087
Ser Asp Asn Gly Gln Arg Leu Leu Asp Met Ile Glu Thr Leu Lys Met
  54                59                64                69

gag cac cat ttg gaa gca cac aag aac ggc cat gcc aat ggg cac ctc      1135
Glu His His Leu Glu Ala His Lys Asn Gly His Ala Asn Gly His Leu
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aac att ggc gta gac atc ccc acc ccc gac ggc agc ttc agc atc aag      1183
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atc	ccc	atg	cca	gaa	ctg	gag	cgc	tct	cag	tac	ccc	atg	gag	tgg	ggc	1279
Ile	Pro	Met	Pro	Glu	Leu	Glu	Arg	Ser	Gln	Tyr	Pro	Met	Glu	Trp	Gly	
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Lys	Thr	Phe	Leu	Ala	Phe	Leu	Tyr	Ala	Leu	Ser	Cys	Phe	Val	Leu	Thr	
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Thr	Val	Met	Ile	Ser	Val	Val	His	Glu	Arg	Val	Pro	Pro	Lys	Glu	Val	
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cag	cct	cca	cta	ccg	gac	aca	ttt	ttt	gac	cat	ttt	aac	cgg	gtg	cag	1423
Gln	Pro	Pro	Leu	Pro	Asp	Thr	Phe	Phe	Asp	His	Phe	Asn	Arg	Val	Gln	
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Trp	Ala	Phe	Ser	Ile	Cys	Glu	Ile	Asn	Gly	Met	Ile	Leu	Val	Gly	Leu	
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Trp	Leu	Ile	Gln	Trp	Leu	Leu	Leu	Lys	Tyr	Lys	Ser	Ile	Ile	Ser	Arg	
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214					219					224					229	
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Met	Tyr	Val	Thr	Thr	Leu	Pro	Val	Pro	Gly	Met	His	Phe	Asn	Cys	Ser	
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Pro	Lys	Leu	Phe	Gly	Asp	Trp	Glu	Ala	Gln	Leu	Arg	Arg	Ile	Met	Lys	
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Gly	Asp	Tyr	Leu	Tyr	Ser	Gly	His	Thr	Val	Met	Leu	Thr	Leu	Thr	Tyr	
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Leu	Phe	Ile	Lys	Glu	Tyr	Ser	Pro	Arg	Arg	Leu	Trp	Trp	Tyr	His	Trp	
294					299					304					309	
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His Asp His Tyr Thr	Val Asp Val Val Val	Ala Tyr Tyr Ile Thr Thr		
326	331	336	341	
aga ctc ttc tgg tgg	tat cac act atg gcc	aat cag caa gtg cta aag		1951
Arg Leu Phe Trp Trp	Tyr His Thr Met Ala	Asn Gln Gln Val Leu Lys		
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gaa gct tcc cag atg	aac ctc ctg gcc agg	gtg tgg tgg tac agg cca		1999
Glu Ala Ser Gln Met	Asn Leu Leu Ala Arg	Val Trp Trp Tyr Arg Pro		
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Phe Gln Tyr Phe Glu	Lys Asn Val Gln Gly	Ile Val Pro Arg Ser Tyr		
374	379	384	389	
cat tgg cct ttc ccc	tgg cca gta gtc cac	ctc agt agg caa gtt aaa		2095
His Trp Pro Phe Pro	Trp Pro Val Val His	Leu Ser Arg Gln Val Lys		
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Tyr Ser Arg Leu Val	Asn Asp Thr *			
406	411			
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<400> 990	
gcggccgccg acgccgccg	gactggagcc ctgacattgc
tgcgctcggg gggctccagg	
60	
cagcccgat cggggccttt	atttctcgtc ggcggcgccc
tgaccgcgc ctgcgaaagc	
120	
caaacaccag agcaccotag	aaggtttaac taaaaga
atg ctc atg ttt gac cca	
Met Leu Met Phe Asp Pro	
175	
1	
gtt cct gtc aag caa	gag gcc atg gac cct
gtc tca gtg tca tac cca	
223	
Val Pro Val Lys Gln	Glu Ala Met Asp
Pro Val Ser Val Ser	Tyr Pro

7	12	17	22	
tct aat tac atg gaa tcc atg aag cct aac aag tat ggg gtc atc tac				271
Ser Asn Tyr Met Glu Ser Met Lys Pro Asn Lys Tyr Gly Val Ile Tyr				
23	28	33	38	
tcc aca cca ttg cct gag aag ttc ttt cag acc cca gaa ggt ctg tgg				319
Ser Thr Pro Leu Pro Glu Lys Phe Phe Gln Thr Pro Glu Gly Leu Ser				
39	44	49	54	
cac gga ata cag atg gag cca gtg gac ctc acg gtg aac aag cgg agt				367
His Gly Ile Gln Met Glu Pro Val Asp Leu Thr Val Asn Lys Arg Ser				
55	60	65	70	
tca ccc cct tgg gct ggg aat tgg ccc tcc tct ctg aag ttc ccg tcc				415
Ser Pro Pro Ser Ala Gly Asn Ser Pro Ser Ser Leu Lys Phe Pro Ser				
71	76	81	86	
tca cac cgg aga gcc tgg cct ggg ttg agc atg cct tct tcc agc cca				463
Ser His Arg Arg Ala Ser Pro Gly Leu Ser Met Pro Ser Ser Ser Pro				
87	92	97	102	
ccg ata aaa aaa tac tca ccc cct tct cca ggc gtg cag ccc ttc ggc				511
Pro Ile Lys Lys Tyr Ser Pro Pro Ser Pro Gly Val Gln Pro Phe Gly				
103	108	113	118	
gtg ccg ctg tcc atg cca cca gtg atg gca gct gcc ctc tgg cgg cat				559
Val Pro Leu Ser Met Pro Pro Val Met Ala Ala Ala Leu Ser Arg His				
119	124	129	134	
gga ata cgg agc ccg ggg atc ctg ccc gtc atc cag ccg gtg gtg gtg				607
Gly Ile Arg Ser Pro Gly Ile Leu Pro Val Ile Gln Pro Val Val Val				
135	140	145	150	
cag ccc gtc ccc ttt atg tac aca agt cac ctc cag cag cct ctc atg				655
Gln Pro Val Pro Phe Met Tyr Thr Ser His Leu Gln Gln Pro Leu Met				
151	156	161	166	
gtc tcc tta tgg gag gag atg gaa aat tcc agt agt agc atg caa gta				703
Val Ser Leu Ser Glu Glu Met Glu Asn Ser Ser Ser Ser Met Gln Val				
167	172	177	182	
cct gta att gaa tca tat gag aag cct ata tca cag aaa aaa att aaa				751
Pro Val Ile Glu Ser Tyr Glu Lys Pro Ile Ser Gln Lys Lys Ile Lys				
183	188	193	198	
ata gaa cct ggg atc gaa cca cag agg aca gat tat tat cct gaa gaa				799
Ile Glu Pro Gly Ile Glu Pro Gln Arg Thr Asp Tyr Tyr Pro Glu Glu				
199	204	209	214	
atg tca ccc ccc tta atg aac tca gtg tcc ccc ccg caa gca ttg ttg				847
Met Ser Pro Pro Leu Met Asn Ser Val Ser Pro Pro Gln Ala Leu Leu				
215	220	225	230	
caa gag taa gtatatt taggtctacc cagcatttgc atagtagtgt gcatcttgga				903
Gln Glu *				
231				

acctggagca gaagcacaag atttcacacg tgtgatgtgg tgtggatgac caggaacggc 963  
 ttgtgatctg tggccgccac tgggtccagta ccaactgggtca agatgggaga atctctccaa 1023  
 aaacaatatg ctgttacact gacaacgtta tgacaaaagt tacatcaagt tttcatggaa 1083  
 tcagtcatcc atgattttgc accttaccac atgaattatt tttggttttt ttccattctt 1143  
 ccaggctatg tatacttact ttttccatta tgagaatcct tgtatagatt aaacttggtg 1203  
 ttctgtggat catgtaaagt tttcatgtgg acacacatag tccttacaga gtgtatagta 1263  
 tcctgtagaa ttgctatcca gtaagaaggc tgtgcagggg tggacaacat ccaagcacct 1323  
 gaag 1327

<210> 991  
 <211> 759  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (174)..(578)

<400> 991  
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 aattctcata ggagccacag cgcggagact gtgaaacatg gttccaaaac tgttcacttc 120  
 ccaaatttgt ctgcttcttc tgttggggct tctggctgtg gagggctcac tcc atg 176  
 Met  
 1  
 tca aac ctc cac agt tta cct ggg ctc agg ggt ttg acg tcc atc agt 224  
 Ser Asn Leu His Ser Leu Pro Gly Leu Arg Gly Leu Thr Ser Ile Ser  
 2 7 12 17  
 agg aac cag ctc caa tgc acc aat gca atg cgg gta att aac aat tat 272  
 Arg Asn Gln Leu Gln Cys Thr Asn Ala Met Arg Val Ile Asn Asn Tyr  
 18 23 28 33  
 caa cgg cga tgg aaa aac caa aat act ttt ctt ctt gca act ttt gct 320  
 Gln Arg Arg Trp Lys Asn Gln Asn Thr Phe Leu Leu Ala Thr Phe Ala  
 34 39 44 49  
 aat gta gtt aat gtt tgt ggt aac cca act ata acc tgc cct cat aac 368  
 Asn Val Val Asn Val Cys Gly Asn Pro Thr Ile Thr Cys Pro His Asn  
 50 55 60 65  
 aga act ctc aac aat tgt cat cat agt gga gtc cag gtg cct tta atg 416  
 Arg Thr Leu Asn Asn Cys His His Ser Gly Val Gln Val Pro Leu Met  
 66 71 76 81

tac tgt aac ctc aca act cca agt cca cag aat att tca aac tgc agg	464
Tyr Cys Asn Leu Thr Thr Pro Ser Pro Gln Asn Ile Ser Asn Cys Arg	
82 87 92 97	

tat gcg cag aca cca gca aac atg ttc tat ata gtt gca tgt gac aac	512
Tyr Ala Gln Thr Pro Ala Asn Met Phe Tyr Ile Val Ala Cys Asp Asn	
98 103 108 113	

agg gat caa cga cgg gac cct cca cag tat cca gtg gtt cca gtt cac	560
Arg Asp Gln Arg Arg Asp Pro Pro Gln Tyr Pro Val Val Pro Val His	
114 119 124 129	

ctg cat acc atc atc taa gctcct gtatcagcac tcctcatcat cactcatctg	614
Leu His Thr Ile Ile *	
130 135	

ccaagctcct caatcatagc caagatccca tccctccatg tactctgggt gtcagcatct	674
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gtcctcttca gtctctatac cccttcact tgcctgagct gaagtgcctt gtgaagcctg	734
--	-----

caataaactg ctttgcaaatt tcatac	759
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<210> 992  
 <211> 1854  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (559)..(1710)

<220>  
 <221> misc\_feature  
 <222> (1)..(1854)  
 <223> n = a,t,c or g

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tttgggaggc caaggcaggt ggatcacctg aggttgggag tttgagacca gcctgaccaa	120
catggagaaa cctgtctct actaaaaaca caaaattagc cgggcgtagt ggcacatgcc	180
tgtaatccca gctacttggg aggctgaggg aggagaattg cttgaaccgg ggaggcagag	240
gttgctgtga gctgagattg cgccactgca ctccagcttg ggcaacgaga gcaaaaactcc	300
atctctaaaa aaaaaacaaa tgacattcct taaggggccag ggacctttat tgtttagtcc	360
caacatattt ggggatttgg gggcgatagc cctactttga attgaaaaca atttgagggg	420
taactgcttg caaactgtca tgggtctcag tctccaacct ctgtggactg taggggagtc	480

aggcaccatt tggcctcctc cccagctctg tgatgtgctg cttctctaga ctgcaggcac 540

cacctgtgtg aaccggac atg aaa ctg gtg tgg cct agt gcc aag ctg ttg 591  
Met Lys Leu Val Trp Pro Ser Ala Lys Leu Leu  
1 5

cag gca gct gca ggt gca tct gcc cgg gcc tgt gac tct gtc acc agc 639  
Gln Ala Ala Ala Gly Ala Ser Ala Arg Ala Cys Asp Ser Val Thr Ser  
12 17 22 27

aat gta ctg cct tta ctg ctg gaa cag ttc cac aag cac agt cag agc 687  
Asn Val Leu Pro Leu Leu Leu Glu Gln Phe His Lys His Ser Gln Ser  
28 33 38 43

agc cag cgg cgg aca atc ctt gaa atg ctc ctg ggt ttc ttg aag ctg 735  
Ser Gln Arg Arg Thr Ile Leu Glu Met Leu Leu Gly Phe Leu Lys Leu  
44 49 54 59

cag cag aaa tgg agc tat gaa gac aaa gat caa agg cct ctg aat ggc 783  
Gln Gln Lys Trp Ser Tyr Glu Asp Lys Asp Gln Arg Pro Leu Asn Gly  
60 65 70 75

ttc aag gac cag ctg tgc tca ctg gta ttc atg gct cta aca gac ccc 831  
Phe Lys Asp Gln Leu Cys Ser Leu Val Phe Met Ala Leu Thr Asp Pro  
76 81 86 91

agc acc cag ctt cag ctt gtt ggc atc cgt aca ctg aca gtc ttg ggt 879  
Ser Thr Gln Leu Gln Leu Val Gly Ile Arg Thr Leu Thr Val Leu Gly  
92 97 102 107

gcc cag cca gat ctc cta tct tat gag gac ttg gag ctg gca gtg ggt 927  
Ala Gln Pro Asp Leu Leu Ser Tyr Glu Asp Leu Glu Leu Ala Val Gly  
108 113 118 123

cac ctg tac aga ctg agc ttc ctg aag gag gat tcc cag agt tgc agg 975  
His Leu Tyr Arg Leu Ser Phe Leu Lys Glu Asp Ser Gln Ser Cys Arg  
124 129 134 139

gtg gca gca ctg gaa gca tca gga acc ctg gct gct ctc tac cct gtg 1023  
Val Ala Ala Leu Glu Ala Ser Gly Thr Leu Ala Ala Leu Tyr Pro Val  
140 145 150 155

gcc ttc agc agc cac ctc gta ccc aag ctc gct gag gag ctg cgt gta 1071  
Ala Phe Ser Ser His Leu Val Pro Lys Leu Ala Glu Glu Leu Arg Val  
156 161 166 171

ggg gag tca aat ttg act aac gga gat gag ccc acc caa tgc tcc cgg 1119  
Gly Glu Ser Asn Leu Thr Asn Gly Asp Glu Pro Thr Gln Cys Ser Arg  
172 177 182 187

cat ctg tgc tgt ctg caa gcc ttg tca gct gta tca aca cat ccc agc 1167  
His Leu Cys Cys Leu Gln Ala Leu Ser Ala Val Ser Thr His Pro Ser  
188 193 198 203

atc gtc aag gag aca ctg cct ctg ctg ctg cag cat ctc tgg caa gtg 1215  
Ile Val Lys Glu Thr Leu Pro Leu Leu Leu Gln His Leu Trp Gln Val  
204 209 214 219

aac aga ggg aat atg gtt gca caa tcc agt gac gtt att gct gtc tgt	1263
Asn Arg Gly Asn Met Val Ala Gln Ser Ser Asp Val Ile Ala Val Cys	
220 225 230 235	
cag agc ctc aga cag atg gca gaa aaa tgt cag cag gac cct gag agt	1311
Gln Ser Leu Arg Gln Met Ala Glu Lys Cys Gln Gln Asp Pro Glu Ser	
236 241 246 251	
tgc tgg tat ttc cac cag aca gct ata cct tgc ctg ctt gcc ttg gct	1359
Cys Trp Tyr Phe His Gln Thr Ala Ile Pro Cys Leu Leu Ala Leu Ala	
252 257 262 267	
gtg cag gcc tct atg cca gag aag gag ccc tca gtt ctg aga aaa gta	1407
Val Gln Ala Ser Met Pro Glu Lys Glu Pro Ser Val Leu Arg Lys Val	
268 273 278 283	
cta ttg gag gat gag gtg ttg gct gcc atg gtg tct gtc att ggc act	1455
Leu Leu Glu Asp Glu Val Leu Ala Ala Met Val Ser Val Ile Gly Thr	
284 289 294 299	
gct aca acc cac ctg agc cct gag tta gct gcc cag agt gtg aca cac	1503
Ala Thr Thr His Leu Ser Pro Glu Leu Ala Ala Gln Ser Val Thr His	
300 305 310 315	
att gtg ccc ctc ttc ttg gat ggc aac gtg tcc ttt ctg cct gaa aac	1551
Ile Val Pro Leu Phe Leu Asp Gly Asn Val Ser Phe Leu Pro Glu Asn	
316 321 326 331	
agc ttc ccg agc aga ttc cag cca ttc cag gat ggc tcc tca ggg cag	1599
Ser Phe Pro Ser Arg Phe Gln Pro Phe Gln Asp Gly Ser Ser Gly Gln	
332 337 342 347	
agg cgg ctg att gca ctg ctt atg gcc ttt gtc tgc tcc ctg cct cga	1647
Arg Arg Leu Ile Ala Leu Leu Met Ala Phe Val Cys Ser Leu Pro Arg	
348 353 358 363	
aat gta agt gag cac att tgg gaa gta ctg tta ttt aac ctt gac aag	1695
Asn Val Ser Glu His Ile Trp Glu Val Leu Leu Phe Asn Leu Asp Lys	
364 369 374 379	
gtg act ccg ggc tga aatttgccac aggctaagct gatcttttac ttccccacc	1750
Val Thr Pro Gly *	
380	
agagaagtta gttctcatcc gtcccggtcc ctgctgccac tatgtactgg ttctcttggg	1810
gttcaagtcg gacgcgtggg tcgacgtnaa ttccggagag ggac	1854

<210> 993  
 <211> 357  
 <212> DNA  
 <213> Homo sapiens



<220>  
 <221> CDS  
 <222> (158) .. (355)

<400> 993  
 agaatgttgg cttagtgtccc aggggttcct ctcaccctaa ccctctcccc ggtggggcga 60  
 ggggactgac cgagcgcgtt gatagcattt gtaggcgga taaggcgttc acgccgcac 120  
 cggcactctt tcagcaacat ggtagcgga ggccaag atg ttt gat tca ctg gca 175  
 Met Phe Asp Ser Leu Ala  
 1  
 aaa gcc gga aaa tat tta ggt cag gcg gcg aag ctg atg att ggt atg 223  
 Lys Ala Gly Lys Tyr Leu Gly Gln Ala Ala Lys Leu Met Ile Gly Met  
 7 12 17 22  
 cct gat tac gac aac tat gtc gaa cat atg cgg gtt aac cat ccc gat 271  
 Pro Asp Tyr Asp Asn Tyr Val Glu His Met Arg Val Asn His Pro Asp  
 23 28 33 38  
 caa acg ccg atg acc tac gaa gag ttt ttc cgt gag cgg cag gac gcg 319  
 Gln Thr Pro Met Thr Tyr Glu Glu Phe Phe Arg Glu Arg Gln Asp Ala  
 39 44 49 54  
 cgc tac ggt gga aaa ggc ggc gcg cgc tgc tgc taa at 357  
 Arg Tyr Gly Gly Lys Gly Gly Ala Arg Cys Cys \*  
 55 60 65

<210> 994  
 <211> 437  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (275) .. (424)

<400> 994  
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 tccagcgggg aggtaaacga tacgtggtaa ttttggtgat tttcattgca ctgcctctcg 120  
 atacgcotta acaaattgctg ctgcctgctg cgcggtgcgc tctacggatt gcccggcgcg 180  
 atagagatcg ctgcctaagc ccgcccctgc acaacctgcg tctatccact gcgccaggtt 240  
 ttctggcgtc acgccgccaa cggcaaagac tgcg atg tcc gat ggc aat acc 292  
 Met Ser Asp Gly Asn Thr  
 1  
 gct ttt aac gct ttg atg tat tgc gga cca aaa gcc gat gac gga aat 340  
 Ala Phe Asn Ala Leu Met Tyr Cys Gly Pro Lys Ala Asp Asp Gly Asn

7	12	17	22	
att ttc agc gcc tgc gcg ccc gct tcg agc gcg gta aag gct tcg gtc				388
Ile Phe Ser Ala Cys Ala Pro Ala Ser Ser Ala Val Lys Ala Ser Val				
23	28	33	38	
tcc gtc gcg cag ccg ggg cag gcg gtc atc ccg tag ccccccgccc ggc				437
Ser Val Ala Gln Pro Gly Gln Ala Val Ile Pro *				
39	44	49		

<210> 995  
 <211> 1714  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (147)..(1136)

<400> 995	
accggaccgg aattcccggg tcgacgattt cgtccaagga gtgccccgga tgtgcccgagc	60
tggtttcttg cccacccct cgggcctttg ggctggacca gccacctctg cctgagacct	120
ccggtcgccg caagaagctg gagagg atg tac agc gtt gac cgt gtg tct gac	173
Met Tyr Ser Val Asp Arg Val Ser Asp	
1 5	
gac atc cct att cgt acc tgg ttc ccc aag gaa aat ctt ttc agc ttc	221
Asp Ile Pro Ile Arg Thr Trp Phe Pro Lys Glu Asn Leu Phe Ser Phe	
10 15 20 25	
cag aca gca acc aca act atg caa gcc atc tcg gtg ttc agg ggc tac	269
Gln Thr Ala Thr Thr Thr Met Gln Ala Ile Ser Val Phe Arg Gly Tyr	
26 31 36 41	
gcg gag agg aag cgc cgg aaa cgg gag aat gat tcc gcg tct gta atc	317
Ala Glu Arg Lys Arg Arg Lys Arg Glu Asn Asp Ser Ala Ser Val Ile	
42 47 52 57	
cag agg aac ttc cgc aaa cac ctg cgc atg gtc ggc agc cgg agg gtg	365
Gln Arg Asn Phe Arg Lys His Leu Arg Met Val Gly Ser Arg Arg Val	
58 63 68 73	
aag gcc cag acg ttc gct gag cgg cgc gag cgg agc ttc agc cgg tcc	413
Lys Ala Gln Thr Phe Ala Glu Arg Arg Glu Arg Ser Phe Ser Arg Ser	
74 79 84 89	
tggtgcgac ccc acc ccc atg aaa gcc gac act tcc cac gac tcc cga	461
Trp Ser Asp Pro Thr Pro Met Lys Ala Asp Thr Ser His Asp Ser Arg	
90 95 100 105	
gac agc agt gac ctg cag agc tcc cac tgc acg ctg gac gag gcc ttc	509

Asp Ser Ser Asp Leu Gln Ser Ser His Cys Thr Leu Asp Glu Ala Phe	
106 111 116 121	
gag gac ctg gac tgg gac act gag aag ggc ctg gag gct gtg gcc tgc	557
Glu Asp Leu Asp Trp Asp Thr Glu Lys Gly Leu Glu Ala Val Ala Cys	
122 127 132 137	
gac acc gaa ggc ttc gtg cca cca aag gtc atg ctc att tcc tcc aag	605
Asp Thr Glu Gly Phe Val Pro Pro Lys Val Met Leu Ile Ser Ser Lys	
138 143 148 153	
gtg ccc aag gct gag tac atc ccc act atc atc cgc cgg gat gac ccc	653
Val Pro Lys Ala Glu Tyr Ile Pro Thr Ile Ile Arg Arg Asp Asp Pro	
154 159 164 169	
tcc atc atc ccc atc ctc tac gac cat gag cac gca acc ttc gag gac	701
Ser Ile Ile Pro Ile Leu Tyr Asp His Glu His Ala Thr Phe Glu Asp	
170 175 180 185	
atc ctt gag gag ata gag agg aag ctg aac gtc tac cac aag gga gcc	749
Ile Leu Glu Glu Ile Glu Arg Lys Leu Asn Val Tyr His Lys Gly Ala	
186 191 196 201	
aag atc tgg aaa atg ctg att ttc tgc cag gga ggt cct gga cac ctc	797
Lys Ile Trp Lys Met Leu Ile Phe Cys Gln Gly Gly Pro Gly His Leu	
202 207 212 217	
tat ctc ctc aag aac aag gtg gcc acc ttt gcc aaa gtg gag aag gaa	845
Tyr Leu Leu Lys Asn Lys Val Ala Thr Phe Ala Lys Val Glu Lys Glu	
218 223 228 233	
gag gac atg att cac ttc tgg aag cgg ctg agc cgc ctg atg agc aaa	893
Glu Asp Met Ile His Phe Trp Lys Arg Leu Ser Arg Leu Met Ser Lys	
234 239 244 249	
gtg aac cca gag ccg aac gtc atc cac atc atg ggc tgc tac att ctg	941
Val Asn Pro Glu Pro Asn Val Ile His Ile Met Gly Cys Tyr Ile Leu	
250 255 260 265	
ggg aac ccc aat gga gag aag ctg ttc cag aac ctc agg acc ctc atg	989
Gly Asn Pro Asn Gly Glu Lys Leu Phe Gln Asn Leu Arg Thr Leu Met	
266 271 276 281	
act cct tat agg gtc acc ttc gag tca ccc ctg gag ctc tca gcc caa	1037
Thr Pro Tyr Arg Val Thr Phe Glu Ser Pro Leu Glu Leu Ser Ala Gln	
282 287 292 297	
ggg aag cag atg atc gag acg tac ttt gac ttc cgg ttg tat cgc ctg	1085
Gly Lys Gln Met Ile Glu Thr Tyr Phe Asp Phe Arg Leu Tyr Arg Leu	
298 303 308 313	
tgg aag agc cgc cag cac tcg aag ctg ctg gac ttt gac gac gtc ctg	1133
Trp Lys Ser Arg Gln His Ser Lys Leu Leu Asp Phe Asp Asp Val Leu	
314 319 324 329	
tga gggg cagaggctc cgcccagtca ccatacaggcc actccctctg caccgggacc	1190
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<210> 996
<211> 1793
<212> DNA
<213> Homo sapiens
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<220>
<221> misc_feature
<222> (1)...(1793)
<223> n = a,t,c or g
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2864

ttt ggt gga gga att tta tcc tgt cta ctg ctt gca gag cct cca ttg	363
Phe Gly Gly Gly Ile Leu Ser Cys Leu Leu Leu Ala Glu Pro Pro Leu	
59 64 69 74	
aag ttt ctt gca aac cac act aac ata tta ctg gca tct tca atc tgg	411
Lys Phe Leu Ala Asn His Thr Asn Ile Leu Leu Ala Ser Ser Ile Trp	
75 80 85 90	
tat att aca ttt ttt tgc ccg cat gac cta gtt tcc cag ggc tat tca	459
Tyr Ile Thr Phe Phe Cys Pro His Asp Leu Val Ser Gln Gly Tyr Ser	
91 96 101 106	
tat cta cct gtt caa cta ctg gct tgc gga atg aag gaa gtg acc aga	507
Tyr Leu Pro Val Gln Leu Leu Ala Ser Gly Met Lys Glu Val Thr Arg	
107 112 117 122	
act tgg aaa ata gta ggt gga gtc aca cat gct aat agc tat tac aaa	555
Thr Trp Lys Ile Val Gly Gly Val Thr His Ala Asn Ser Tyr Tyr Lys	
123 128 133 138	
aat ggc tgg ata gtc atg ata gct att gga tgg gcc cga ggt gca ggt	603
Asn Gly Trp Ile Val Met Ile Ala Ile Gly Trp Ala Arg Gly Ala Gly	
139 144 149 154	
ggg acc att ata acg aat ttt gag agg ttg gta aaa gga gat tgg aaa	651
Gly Thr Ile Ile Thr Asn Phe Glu Arg Leu Val Lys Gly Asp Trp Lys	
155 160 165 170	
cca gaa ggt gat gaa tgg ctg aag atg tca tac cct gcc aag gta acc	699
Pro Glu Gly Asp Glu Trp Leu Lys Met Ser Tyr Pro Ala Lys Val Thr	
171 176 181 186	
ctg ctg ggg tca gtt atc ttc aca ttc cag cac acc cag cat ctg gca	747
Leu Leu Gly Ser Val Ile Phe Thr Phe Gln His Thr Gln His Leu Ala	
187 192 197 202	
ata tca aag cat aat ctt atg ttc ctt tat acc atc ttt att gtg gcc	795
Ile Ser Lys His Asn Leu Met Phe Leu Tyr Thr Ile Phe Ile Val Ala	
203 208 213 218	
aca aag ata acc atg atg act aca cag act tct act atg aca ttt gct	843
Thr Lys Ile Thr Met Met Thr Thr Gln Thr Ser Thr Met Thr Phe Ala	
219 224 229 234	
cct ttt gag gat aca ttg agt tgg atg cta ttt ggc tgg cag cag ccg	891
Pro Phe Glu Asp Thr Leu Ser Trp Met Leu Phe Gly Trp Gln Gln Pro	
235 240 245 250	
ttt tca tca tgt gag aag aaa agt gaa gca aag tca cct tcc aat ggc	939
Phe Ser Ser Cys Glu Lys Lys Ser Glu Ala Lys Ser Pro Ser Asn Gly	
251 256 261 266	
gtt ggg tca ttg gcc tca aag ccg gta gat gtt gcc tca gat aat gtt	987
Val Gly Ser Leu Ala Ser Lys Pro Val Asp Val Ala Ser Asp Asn Val	
267 272 277 282	

aaa aag aaa cat act aag aag aat gaa taa a tttacgtgat gagctctaca 1038  
 Lys Lys Lys His Thr Lys Lys Asn Glu \*  
 283 288

aggccaaaaa ttttttttct tatctacctg ttatatgtg ctaatttttc tatgtatgtg 1098  
 atgtgaaatg aagactatat atatggaatg gaggtgacag aaagaaagaa attcttttgtt 1158  
 tgaggagagac ttcccctttc tggattgtat ttgtagagtg ttacgagtgt atcatgtgat 1218  
 tatgctttac cgggtataaga gattctgttg tgattatttg aatagtttta tattaataaa 1278  
 agaagacaaa attttttaaa tgttagaaaa agcagatctg tcattgcaaa gtaacaaaaa 1338  
 ttttaagctt ttaaaaatgt agatttttca tatttttaaa atttgaatct atttgagctt 1398  
 tagttcagca gaattaaatt tttacttgac attatcatta aaattgctag gtatggagaa 1458  
 caattcctat tttattttga aactgagaa gagtaaactt ttctaaaaac actttatatt 1518  
 ataaatgaaa ataaattgct agtttatatt ttagatataa acatcatatt tttattaat 1578  
 acctacatca aatggaaaat atctgaaatt ttttttccat agcaggtatt tntactaga 1638  
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gaggttctta ccgaaagcag gggaggaagc cgcagcccaa ggaggtcgtc acttgccggg 360  
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Met Thr His Gln Asp  
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Leu Ser Ile Thr Ala Lys Leu Ile Asn Gly Gly Val Ala Gly Leu Val  
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Gly Val Thr Cys Val Phe Pro Ile Asp Leu Ala Lys Thr Arg Leu Gln  
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Asn Gln His Gly Lys Ala Met Tyr Lys Gly Met Ile Asp Cys Leu Met  
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Lys Thr Ala Arg Ala Glu Gly Phe Phe Gly Met Tyr Arg Gly Ala Ala  
54 59 64 69  
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Asn Asp Phe Phe Arg Arg Leu Leu Met Glu Asp Gly Met Gln Arg Asn  
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Val Val Thr Cys Pro Met Glu Met Leu Lys Ile Gln Leu Gln Asp Ala  
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134 139 144 149  
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Ser Arg Ser Tyr Thr Thr Gly Ser Ala Ser Thr His Arg Arg Pro Ser  
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Ala Thr Leu Ile Ala Trp Glu Leu Leu Arg Thr Gln Gly Leu Ala Gly  
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ctc tac agg ggc ctg ggt gcc act ctc ctc aga gac att cct ttc tcc 1111  
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Ile Ile Tyr Phe Pro Leu Phe Ala Asn Leu Asn Asn Leu Gly Phe Asn				
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Glu Leu Ala Gly Lys Ala Ser Phe Ala His Ser Phe Val Ser Gly Cys				
214	219	224	229	
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Val Ala Gly Ser Ile Ala Ala Val Ala Val Thr Pro Leu Asp Val Leu				
230	235	240	245	
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Lys Thr Arg Ile Gln Thr Leu Lys Lys Gly Leu Gly Glu Asp Met Tyr				
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Ser Gly Ile Thr Asp Cys Ala Arg *				
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 Met Lys Arg Arg Ala Gly Leu Gly Gly Ser Met Arg

1 5 10



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Ser	Val	Val	Gly	Phe	Leu	Ser	Gln	Arg	Gly	Leu	His	Gly	Asp	Pro	Leu	
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ctc	act	cag	gac	ttt	cag	agg	aga	cgc	ctg	cgg	ggc	tgc	aga	aac	ctc	207
Leu	Thr	Gln	Asp	Phe	Gln	Arg	Arg	Arg	Leu	Arg	Gly	Cys	Arg	Asn	Leu	
29					34					39					44	
tac	aag	aag	gac	ctc	ctc	ggc	cac	ttc	ggc	tgt	gtc	aat	gcc	att	gaa	255
Tyr	Lys	Lys	Asp	Leu	Leu	Gly	His	Phe	Gly	Cys	Val	Asn	Ala	Ile	Glu	
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Phe	Ser	Asn	Asn	Gly	Gly	Gln	Trp	Leu	Val	Ser	Gly	Gly	Asp	Asp	Arg	
61					66					71					76	
cgg	gtt	ctg	cta	tgg	cac	atg	gaa	caa	gcc	atc	cac	tcc	agg	gtc	aag	351
Arg	Val	Leu	Leu	Trp	His	Met	Glu	Gln	Ala	Ile	His	Ser	Arg	Val	Lys	
77					82					87					92	
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93					98					103					108	
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Phe	Asn	Ser	Gly	Asn	Thr	Lys	Val	Phe	Ser	Gly	Gly	Asn	Asp	Glu	Gln	
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gtt	atc	ctc	cat	gat	gtt	gaa	agc	agt	gag	aca	ttg	gac	gtg	ttt	gct	495
Val	Ile	Leu	His	Asp	Val	Glu	Ser	Ser	Glu	Thr	Leu	Asp	Val	Phe	Ala	
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His	Glu	Asp	Ala	Val	Tyr	Gly	Leu	Ser	Val	Ser	Pro	Val	Asn	Asp	Asn	
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Arg	Glu	Ser	Pro	His	Gly	Glu	Pro	Phe	Cys	Leu	Ala	Asn	Tyr	Pro	Ser	
173					178					183					188	
gcc	ttt	cat	agt	gtc	atg	ttt	aac	cct	gtg	gag	ccc	agg	ttg	ttg	gcc	687
Ala	Phe	His	Ser	Val	Met	Phe	Asn	Pro	Val	Glu	Pro	Arg	Leu	Leu	Ala	
189					194					199					204	
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Thr	Ala	Asn	Ser	Lys	Glu	Gly	Val	Gly	Leu	Trp	Asp	Ile	Arg	Lys	Pro	
205					210					215					220	
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Gln	Ser	Ser	Leu	Leu	Arg	Tyr	Gly	Gly	Asn	Leu	Ser	Leu	Gln	Ser	Ala	
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Arg Arg Leu Pro Pro Val Leu Tyr Asp Ile His Ser Arg Leu Pro Val	
253 258 263 268	
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Phe Gln Phe Asp Asn Gln Gly Tyr Phe Asn Ser Cys Thr Met Lys Ser	
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Cys Cys Phe Ala Gly Asp Arg Asp Gln Tyr Ile Leu Ser Gly Ser Asp	
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Arg Ser Ile Val Asn Gln Val Arg Phe Asn Pro His Thr Tyr Met Ile	
333 338 343 348	
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Cys Ser Ser Gly Val Glu Lys Ile Ile Lys Ile Trp Ser Pro Tyr Lys	
349 354 359 364	
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Gln Pro Gly Cys Thr Gly Asp Leu Asp Gly Arg Ile Glu Asp Asp Ser	
365 370 375 380	
cgc tgc ctc tat acc cat gaa gag tac atc agc ctt gtg ctg aac agt	1263
Arg Cys Leu Tyr Thr His Glu Glu Tyr Ile Ser Leu Val Leu Asn Ser	
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gcc	gac	aac	gcc	ttc	cac	ctg	ggg	ccc	ctg	cgg	gtc	acc	acc	aca	aac	1551
Ala	Asp	Asn	Ala	Phe	His	Leu	Gly	Pro	Leu	Arg	Val	Thr	Thr	Thr	Asn	
477					482					487					492	
aca	gta	gcc	tca	act	cca	cca	aca	ccc	acg	tgt	gag	gat	gca	gcc	tct	1599
Thr	Val	Ala	Ser	Thr	Pro	Pro	Thr	Pro	Thr	Cys	Glu	Asp	Ala	Ala	Ser	
493					498					503					508	
cgc	cag	cag	cgt	ctg	tct	gct	ctg	cgg	cgc	tac	caa	gac	aaa	cgc	ctc	1647
Arg	Gln	Gln	Arg	Leu	Ser	Ala	Leu	Arg	Arg	Tyr	Gln	Asp	Lys	Arg	Leu	
509					514					519					524	
ctg	gcc	ctt	tcc	aat	gag	tcc	gat	tct	gag	gag	aat	gtc	tgt	gag	gtg	1695
Leu	Ala	Leu	Ser	Asn	Glu	Ser	Asp	Ser	Glu	Glu	Asn	Val	Cys	Glu	Val	
525					530					535					540	
gaa	cta	gac	aca	gat	ctc	ttt	ccc	cgg	cca	cgg	tca	ccc	agc	ccc	gaa	1743
Glu	Leu	Asp	Thr	Asp	Leu	Phe	Pro	Arg	Pro	Arg	Ser	Pro	Ser	Pro	Glu	
541					546					551					556	
gat	gaa	tcc	agc	agt	tcc	agc	agc	tct	agc	agc	tct	gag	gat	gag	gag	1791
Asp	Glu	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Glu	Asp	Glu	Glu	
557					562					567					572	
gag	ctg	aat	gaa	cgc	cga	gcc	tct	acc	tgg	cag	cgg	aat	gcc	atg	cgg	1839
Glu	Leu	Asn	Glu	Arg	Arg	Ala	Ser	Thr	Trp	Gln	Arg	Asn	Ala	Met	Arg	
573					578					583					588	
cgc	cga	cag	aag	aca	acc	cga	gaa	gac	aag	ccc	agt	gcc	cca	atc	aag	1887
Arg	Arg	Gln	Lys	Thr	Thr	Arg	Glu	Asp	Lys	Pro	Ser	Ala	Pro	Ile	Lys	
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Pro	Thr	Asn	Thr	Tyr	Ile	Gly	Glu	Asp	Asn	Tyr	Asp	Tyr	Pro	Gln	Ile	
605					610					615					620	
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Lys	Val	Asp	Asp	Leu	Ser	Ser	Ser	Pro	Thr	Ser	Ser	Pro	Glu	Arg	Ser	
621					626					631					636	
act	tcc	acg	cta	gag	att	caa	cca	agc	cgg	gca	tca	cca	act	tct	gac	2031
Thr	Ser	Thr	Leu	Glu	Ile	Gln	Pro	Ser	Arg	Ala	Ser	Pro	Thr	Ser	Asp	
637					642					647					652	
ata	gaa	tca	gtt	gag	cga	aaa	att	tat	aaa	gct	tac	aag	tgg	ctc	cgc	2079
Ile	Glu	Ser	Val	Glu	Arg	Lys	Ile	Tyr	Lys	Ala	Tyr	Lys	Trp	Leu	Arg	
653					658					663					668	
tac	tct	tat	atc	tcc	tac	tca	aat	aac	aaa	gat	gga	gag	acc	tcc	ttg	2127
Tyr	Ser	Tyr	Ile	Ser	Tyr	Ser	Asn	Asn	Lys	Asp	Gly	Glu	Thr	Ser	Leu	
669					674					679					684	
gtg	acc	ggg	gag	gca	gat	gaa	ggg	aga	gca	gga	acc	agc	cac	aaa	gac	2175
Val	Thr	Gly	Glu	Ala	Asp	Glu	Gly	Arg	Ala	Gly	Thr	Ser	His	Lys	Asp	

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701	706	711	716	
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Ala Gln Arg Asn Gln Asp Leu Pro Pro Glu Gly Cys Ser Lys Asp Thr				
717	722	727	732	
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Phe Lys Glu Glu Thr Pro Arg Thr Pro Ser Asn Gly Pro Gly His Glu				
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cac agc agc cat gct tgg gca gag gtg cca gag ggt acc tct cag gac				2367
His Ser Ser His Ala Trp Ala Glu Val Pro Glu Gly Thr Ser Gln Asp				
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act ggc aat agc ggc tct gta gag cac cct ttt gaa acc aag aag ctc				2415
Thr Gly Asn Ser Gly Ser Val Glu His Pro Phe Glu Thr Lys Lys Leu				
765	770	775	780	
aat gga aag gcc ctg agc agt cgg gct gag gag ccg cct tct cct cct				2463
Asn Gly Lys Ala Leu Ser Ser Arg Ala Glu Glu Pro Pro Ser Pro Pro				
781	786	791	796	
gtc ccc aag gca tct ggc tcc act ctc aac agc ggg tct ggc aac tgt				2511
Val Pro Lys Ala Ser Gly Ser Thr Leu Asn Ser Gly Ser Gly Asn Cys				
797	802	807	812	
ccc agg acc cag tct gat gac agt gag gag agg agc ctc gaa acc atc				2559
Pro Arg Thr Gln Ser Asp Asp Ser Glu Glu Arg Ser Leu Glu Thr Ile				
813	818	823	828	
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Cys Ala Asn His Asn Asn Gly Arg Leu His Pro Arg Pro Pro His Pro				
829	834	839	844	
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His Asn Asn Gly Gln Asn Leu Gly Glu Leu Glu Val Val Ala Tyr Ser				
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Ser Pro Gly His Ser Asp Thr Asp Arg Asp Asn Ser Ser Leu Thr Gly				
861	866	871	876	
aca ctc cta cac aaa gat tgt tgc ggg tct gaa atg gcc tgt gag acc				2751
Thr Leu Leu His Lys Asp Cys Cys Gly Ser Glu Met Ala Cys Glu Thr				
877	882	887	892	
ccc aat gct gga aca aga gag gac ccc act gac acc cca gcc aca gat				2799
Pro Asn Ala Gly Thr Arg Glu Asp Pro Thr Asp Thr Pro Ala Thr Asp				
893	898	903	908	
agt agc agg gct gtt cat ggc cac agt ggc ctc aaa agg caa cga att				2847
Ser Ser Arg Ala Val His Gly His Ser Gly Leu Lys Arg Gln Arg Ile				
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Val Glu Arg Leu Ala Ala Met Arg Ser Asp Ser Leu Val Pro Gly Thr	
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Gly Glu Leu Ser Ile Ser Asn Glu Glu Asp Ser Leu Glu Asn Gly Gln	
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Ser Leu Ser Ser Ser Gln Leu Ser Leu Pro Ala Leu Ser Glu Met Glu	
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Thr Pro Val Lys Gln Leu Pro Leu Leu Lys Gln Pro Pro Ala Leu Pro	
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Pro Lys Pro Thr Thr Arg Ile Ala Asn His Leu Thr Asp Pro Gly Ala	
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Pro Val Lys Leu Pro Cys Leu Pro Val Lys Leu Ser Pro Pro Leu Pro	
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Pro Lys Lys Val Met Ile Cys Met Pro Val Gly Gly Pro Asp Leu Ser	
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Gly Ser His Gly Gln His Leu Pro Ser Thr Thr Gly Ser Leu Pro Met	
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cac ccc tcg ggc tgc aga atg ata gac gag ctc aac aaa acg ctg gcc	1301
His Pro Ser Gly Cys Arg Met Ile Asp Glu Leu Asn Lys Thr Leu Ala	
329 334 339 344	
atg acc atg cag agg ctg gaa agc cag agg ctg cag ccc tca cca gac	1349
Met Thr Met Gln Arg Leu Glu Ser Gln Arg Leu Gln Pro Ser Pro Asp	
345 350 355 360	
agc caa acc tgc cag cgc ctt gat ctt gga ctt tcc agc ccc gac aac	1397
Ser Gln Thr Cys Gln Arg Leu Asp Leu Gly Leu Ser Ser Pro Asp Asn	
361 366 371 376	
tgt tgc aat gag cta ttt aaa aag aag aag aag aag aag gag gag gag	1445
Cys Cys Asn Glu Leu Phe Lys Lys Lys Lys Lys Lys Lys Glu Glu Glu	
377 382 387 392	
aag aag aag aag gag gag gag gag gag aaa aag agg agg agg agg agg	1493
Lys Lys Lys Lys Glu Glu Glu Glu Glu Lys Lys Arg Arg Arg Arg Arg	
393 398 403 408	
agg aaa gag aag aga aga gaa gag aag aga aga gaa gag aag aga aga	1541
Arg Lys Glu Lys Arg Arg Glu Glu Lys Arg Arg Glu Glu Lys Arg Arg	
409 414 419 424	
gaa gag aag aga aga gaa aag gac att tgg caa tgt ctg aag att gtt	1589
Glu Glu Lys Arg Arg Glu Lys Asp Ile Trp Gln Cys Leu Lys Ile Val	
425 430 435 440	
ttg gct gtc aca gtt gga gga agt gct gct ggc atc tgc tct ggg ttg	1637
Leu Ala Val Thr Val Gly Gly Ser Ala Ala Gly Ile Cys Ser Gly Leu	
441 446 451 456	
cac tcg ggt gat ggg gtc acc aaa gca gga cct atg ggc ctt cca gaa	1685

His	Ser	Gly	Asp	Gly	Val	Thr	Lys	Ala	Gly	Pro	Met	Gly	Leu	Pro	Glu		
457					462					467					472		
ata	aga	caa	gtg	cca	act	gtt	gtg	att	gaa	tgt	gat	gac	aat	aaa	gaa	1733	
Ile	Arg	Gln	Val	Pro	Thr	Val	Val	Ile	Glu	Cys	Asp	Asp	Asn	Lys	Glu		
473					478					483					488		
aat	gtg	cct	cat	gag	tca	gac	tac	gaa	gac	tct	tct	tgc	ctg	tat	aca	1781	
Asn	Val	Pro	His	Glu	Ser	Asp	Tyr	Glu	Asp	Ser	Ser	Cys	Leu	Tyr	Thr		
489					494					499					504		
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Arg	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Asp	Glu	Asp	Asp	Asp	Ser	Ser	Leu		
505					510					515					520		
tac	acc	agc	tcc	ctg	gcc	atg	aag	gtc	tgc	agg	aag	gac	tcc	tta	gcc	1877	
Tyr	Thr	Ser	Ser	Leu	Ala	Met	Lys	Val	Cys	Arg	Lys	Asp	Ser	Leu	Ala		
521					526					531					536		
atc	aaa	ctc	agc	aac	agg	ccc	tcc	aag	cga	gag	ctg	gaa	gaa	aag	aac	1925	
Ile	Lys	Leu	Ser	Asn	Arg	Pro	Ser	Lys	Arg	Glu	Leu	Glu	Glu	Lys	Asn		
537					542					547					552		
atc	ctt	ccc	agg	cag	acg	gat	gag	gag	cgg	ctg	gag	ctg	agg	caa	cag	1973	
Ile	Leu	Pro	Arg	Gln	Thr	Asp	Glu	Glu	Arg	Leu	Glu	Leu	Arg	Gln	Gln		
553					558					563					568		
att	ggc	acc	aag	ctc	acc	agc	tct	gct	aca	gta	caa	gga	gag	ccc	cag	2021	
Ile	Gly	Thr	Lys	Leu	Thr	Ser	Ser	Ala	Thr	Val	Gln	Gly	Glu	Pro	Gln		
569					574					579					584		
gta	tgt	gag	ggg	caa	atg	aag	att	tat	ctg	cag	atg	gga	gtg	aga	tgc	2069	
Val	Cys	Glu	Gly	Gln	Met	Lys	Ile	Tyr	Leu	Gln	Met	Gly	Val	Arg	Cys		
585					590					595					600		
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Gln	Ser	Ile	Trp	Leu	Pro	Gln	*										
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1					5				10								



cgc tgc cac gtg tgc acc agc tcc agc aac tgc aag cat tct gtg gtc	96
Arg Cys His Val Cys Thr Ser Ser Ser Asn Cys Lys His Ser Val Val	
17 22 27 32	
tgc ccg gcc agc tct cgc ttc tgc aag acc acg aac aca gtg gag cct	144
Cys Pro Ala Ser Ser Arg Phe Cys Lys Thr Thr Asn Thr Val Glu Pro	
33 38 43 48	
ctg agg ggg aat ctg gtg aag aag gac tgt gcg gag tcg tgc aca ccc	192
Leu Arg Gly Asn Leu Val Lys Lys Asp Cys Ala Glu Ser Cys Thr Pro	
49 54 59 64	
agc tac acc ctg caa ggc cag gtc agc agc ggc acc agc tcc acc cag	240
Ser Tyr Thr Leu Gln Gly Gln Val Ser Ser Gly Thr Ser Ser Thr Gln	
65 70 75 80	
tgc tgc cag gag gac ctg tgc aat gag aag ctg cac aac gct gca ccc	288
Cys Cys Gln Glu Asp Leu Cys Asn Glu Lys Leu His Asn Ala Ala Pro	
81 86 91 96	
acc cgc acc gcc ctg gcc cac agt gcc ctg agc ctg ggg ctg gcc ctg	336
Thr Arg Thr Ala Leu Ala His Ser Ala Leu Ser Leu Gly Leu Ala Leu	
97 102 107 112	
agc ctg ctg gcc gtc atc tta gcc ccc agc ctg tga cctt cccccaggg	386
Ser Leu Leu Ala Val Ile Leu Ala Pro Ser Leu *	
113 118 123	
aaggccctc atgcctttcc ttccctttct ctggggattc cacacctctc ttccccagcc	446
gcaacggggg tgccaggagc cccaggctga gggcttcccc gaaagtctgg gaccaggctc	506
aggtgggcat ggaatgctga tgacttgag caggccccac agacccaca gaggatgaag	566
ccacccaca gaggatgcag cccccagctg catggaaggt ggaggacaga agccctgtgg	626
atccccggat ttcacactcc ttctgttttg ttgccgttta tttttgtact caaatctcta	686
catggagata aatgatttaa accagaaaaa aaaaaaaagg ggcggccgtt ttagaggatc	746
caagttaacg aacgcgggca tgcagacgaa tagttttttt atagggggccc caaaattcaa	806
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Leu Trp Ile Lys Glu Asn Tyr Glu Val Tyr Lys Gln Glu Gln Glu Glu				
191	196	201	206	
gaa tta aag aaa aag ttg gca aat gac ccc aga tgg aag aga tac agg				852
Glu Leu Lys Lys Lys Leu Ala Asn Asp Pro Arg Trp Lys Arg Tyr Arg				
207	212	217	222	
aga tgg atg aag aat gaa ggg cct ggg cgg tta aca ttt gtg gat gac				900
Arg Trp Met Lys Asn Glu Gly Pro Gly Arg Leu Thr Phe Val Asp Asp				
223	228	233	238	
tga agat tgatggaatg ctactatgcc aaaccttaat tgtgatatta ttttcataac				957
*				
239				
tgaattatatt tagaaatgta tcaattgact gctgctcagc agtaactaaa attcctcaag				1017
tatttgatta aacagaataa tgtcaaaatt taaaccttcc cttaaaactt tatacataag				1077
acatttatga ttgttcaatt ttataatct atttgtggat tttgttaaaa gatttcacat				1137
gaagatttat tagttgccat ttaaaatttt tatatgttta gttaaaagat ttgacatgaa				1197
aatttattag ataccattta aaaattttat gtgttatgtg tttatncttt gagaatgtta				1257
ccttactgtt tgtaatagtg ctacattttt ctgctttcat ggcctctgta ttttcacaaa				1317
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gcagtaggat ggacc				1392

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tgtccatcca ggccagcagc tgaaggagcc tcacctgcct cctttctctg agtagcacgg	180
atttgaggag aagcagcgaa g atg tcc agc gag cct ccc cct cct tat cct	231
Met Ser Ser Glu Pro Pro Pro Pro Tyr Pro	

1

5

ggg ggc ccc aca gcc cca ctt ctg gaa gag aaa agt gga gcc ccg ccc	279
Gly Gly Pro Thr Ala Pro Leu Leu Glu Glu Lys Ser Gly Ala Pro Pro	
11 16 21 26	
acc cca ggc cgt tcc tcc cca gct gtg atg cag ccc cct cca ggc atg	327
Thr Pro Gly Arg Ser Ser Pro Ala Val Met Gln Pro Pro Pro Gly Met	
27 32 37 42	
cca ctg ccc cct gcg gac att ggc ccc cca ccc tat gag ccg ccg ggt	375
Pro Leu Pro Pro Ala Asp Ile Gly Pro Pro Pro Tyr Glu Pro Pro Gly	
43 48 53 58	
cac cca atg ccc cag cct ggc ttc atc cca cca cac atg agt gca gat	423
His Pro Met Pro Gln Pro Gly Phe Ile Pro Pro His Met Ser Ala Asp	
59 64 69 74	
ggc acc tac atg cct ccg ggt ttc tac cct cct cca ggc ccc cac cca	471
Gly Thr Tyr Met Pro Pro Gly Phe Tyr Pro Pro Gly Pro His Pro	
75 80 85 90	
ccc atg ggc tac tac ccc cca ggg ccc tac acg cca ggg ccc tac cct	519
Pro Met Gly Tyr Tyr Pro Pro Gly Pro Tyr Thr Pro Gly Pro Tyr Pro	
91 96 101 106	
ggc cct ggg ggc cac aca gcc aca gtc ctg gtc cct tca gga gct gcc	567
Gly Pro Gly Gly His Thr Ala Thr Val Leu Val Pro Ser Gly Ala Ala	
107 112 117 122	
acc acg gtg aca gtg ctg cag gga gag atc ttt gag gga gcg cct gtg	615
Thr Thr Val Thr Val Leu Gln Gly Glu Ile Phe Glu Gly Ala Pro Val	
123 128 133 138	
cag acg gtg tgt ccc cac tgc cag cag gcc atc acc acc aag atc tcc	663
Gln Thr Val Cys Pro His Cys Gln Gln Ala Ile Thr Thr Lys Ile Ser	
139 144 149 154	
tac gag att ggc ttg atg aat ttc gtg ctg ggt ttc ttc tgt tgc ttc	711
Tyr Glu Ile Gly Leu Met Asn Phe Val Leu Gly Phe Phe Cys Cys Phe	
155 160 165 170	
atg gga tgt gat ctg ggc tgc tgc ctg atc ccc tgc ctc atc aat gac	759
Met Gly Cys Asp Leu Gly Cys Cys Leu Ile Pro Cys Leu Ile Asn Asp	
171 176 181 186	
ttc aag gat gtg acg cac aca tgc ccc agc tgc aaa gct aca tct aca	807
Phe Lys Asp Val Thr His Thr Cys Pro Ser Cys Lys Ala Thr Ser Thr	
187 192 197 202	
cgt aca agc gcc tgt gct aac gga gct ggg act cgg gac tcc ccc gcc	855
Arg Thr Ser Ala Cys Ala Asn Gly Ala Gly Thr Arg Asp Ser Pro Ala	
203 208 213 218	
tgt cag tct ggc ccc ctg tgc ttt gct ccc tgt gct cag tgg tca ctt	903
Cys Gln Ser Gly Pro Leu Cys Phe Ala Pro Cys Ala Gln Trp Ser Leu	
219 224 229 234	
tcc cgc tcc cac ttg ggg ctg gga gcc gtg cca cca tcc cct aga agt	951

Ser	Arg	Ser	His	Leu	Gly	Leu	Gly	Ala	Val	Pro	Pro	Ser	Pro	Arg	Ser	
235					240					245					250	

  

cct gtc ctc ttc acc ctg ccc tac ctg agc cgc tga ctct tctggcaaaa	1001
Pro Val Leu Phe Thr Leu Pro Tyr Leu Ser Arg *	
251	256
261	

  

attctgttgg gatttaaggc caagggtcag tgggtggcag ggggctggca atgagcttgt	1061
gtgttgttgg tctgcttgggt gtgtgtgatc gggaagataa gctgggaggg gtctcctgct	1121
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gggaccaaca gcagccagag cagtttagcca gttagtcccc aggcctgtgg ccacaggcgt	1241
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cagggtcaca aagcctgggt ttgtttctgg gtactttgcg cctctgggggt gctagagggtg	1361
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cctcgccctg tctttatttc ctgaatggtt tgtgaacttg ctcacctgga cactgtatc	1961
ctgccactgt ccttctgtgt ctgcactgc cactgcatgg cctcctgtca ctgtgaatcg	2021
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Met Thr Ala Ser Asn Trp Thr Leu Val  
1 5

atg gag ggc gag tgg atg ctg aaa ttt tac gcc cca tgg tgt cca tcc 158  
Met Glu Gly Glu Trp Met Leu Lys Phe Tyr Ala Pro Trp Cys Pro Ser  
10 15 20 25

tgc cag cag act gat tca gaa tgg gag gct ttt gca aag aat ggt gaa 206  
Cys Gln Gln Thr Asp Ser Glu Trp Glu Ala Phe Ala Lys Asn Gly Glu  
26 31 36 41

ata ctt cag atc agt gtg ggg aag gta gat gtc att caa gaa cca ggt 254  
Ile Leu Gln Ile Ser Val Gly Lys Val Asp Val Ile Gln Glu Pro Gly  
42 47 52 57

ttg agt ggc cgc ttc ttt gtc acc act ctg cca gca ttt ttt cat gca 302  
Leu Ser Gly Arg Phe Phe Val Thr Thr Leu Pro Ala Phe Phe His Ala  
58 63 68 73

aag gat ggg ata ttc cgc cgt tat cgt ggc cca gga atc ttc gaa gac 350  
Lys Asp Gly Ile Phe Arg Arg Tyr Arg Gly Pro Gly Ile Phe Glu Asp  
74 79 84 89

ctg cag aat tat atc tta gag aag aaa tgg caa tca gtc gag cct ctg 398  
Leu Gln Asn Tyr Ile Leu Glu Lys Lys Trp Gln Ser Val Glu Pro Leu  
90 95 100 105

act ggc tgg aaa tcc ccg gct tct cta acg atg tct gga atg gct ggt 446  
Thr Gly Trp Lys Ser Pro Ala Ser Leu Thr Met Ser Gly Met Ala Gly  
106 111 116 121

ctt ttt agc atc tct ggc aag ata tgg cat ctt cac aac tat ttc aca 494  
Leu Phe Ser Ile Ser Gly Lys Ile Trp His Leu His Asn Tyr Phe Thr  
122 127 132 137

gtg act ctt gga att cct gct tgg tgt tct tat gtc ttt ttc gtc ata 542  
Val Thr Leu Gly Ile Pro Ala Trp Cys Ser Tyr Val Phe Phe Val Ile  
138 143 148 153

gcc acc ttg gtt ttt ggc ctt ttt atg ggt ctg gtc ttg gtg gta ata 590  
Ala Thr Leu Val Phe Gly Leu Phe Met Gly Leu Val Leu Val Val Ile  
154 159 164 169

tca gaa tgt ttc tat gtg cca ctt cca agg cat tta tct gag cgt tct 638  
Ser Glu Cys Phe Tyr Val Pro Leu Pro Arg His Leu Ser Glu Arg Ser  
170 175 180 185

gag cag aat cgg aga tca gag gag gct cat aga gct gaa cag ttg cag 686  
Glu Gln Asn Arg Arg Ser Glu Glu Ala His Arg Ala Glu Gln Leu Gln  
186 191 196 201

gat gcg gag gag gaa aaa gat gat tca aat gaa gaa gaa aac aaa gac 734  
Asp Ala Glu Glu Glu Lys Asp Asp Ser Asn Glu Glu Glu Asn Lys Asp

202	207	212	217	
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Ser Leu Val Asp Asp Glu Glu Glu Lys Glu Asp Leu Gly Asp Glu Asp				
218	223	228	233	
gaa gca gag gaa gaa gag gag gag gac aac ttg gct gct ggt gtg gat				830
Glu Ala Glu Glu Glu Glu Glu Glu Asp Asn Leu Ala Ala Gly Val Asp				
234	239	244	249	
gag gag aga agt gag gcc aat gat cag ggg ccc cca gga gag gac ggt				878
Glu Glu Arg Ser Glu Ala Asn Asp Gln Gly Pro Pro Gly Glu Asp Gly				
250	255	260	265	
gtg acc cgg gag gaa gta gag cct gag gag gct gaa gaa ggc atc tct				926
Val Thr Arg Glu Glu Val Glu Pro Glu Glu Ala Glu Glu Gly Ile Ser				
266	271	276	281	
gag caa ccc tgc cca gct gac aca gag gtg gtg gaa gac tcc ttg agg				974
Glu Gln Pro Cys Pro Ala Asp Thr Glu Val Val Glu Asp Ser Leu Arg				
282	287	292	297	
cag cgt aaa agt cag cat gct gac aag gga ctg tag attt aatgatgcgt				1024
Gln Arg Lys Ser Gln His Ala Asp Lys Gly Leu *				
298	303	308		
tttcaagaat acacacccaaa acaatatgtc agcttccott tggcctgcag tttgtaccaa				1084
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ttttttttta agttttctaa gcaatatattt tcaagccaga agtctcttaa gtcttgccag				1924
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 actgtaagta cccagggagg ctaatttctt taaaaaaaaa aaatctatcc atctacttct 2224  
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 actacagtgc ccgcccagtt tgcggacagt gaaaaaaaaa aagtaccgtt ccaaagcagg 180  
 agcctaggca gccgagaggg tgcccgaacc tgagtctgag ttgcggccac ttcaggagct 240  
 gagaggagca gg atg gaa ctg cag gat cca aag atg aat gga gcc ctc 288  
                   Met Glu Leu Gln Asp Pro Lys Met Asn Gly Ala Leu  
                   1                  5                  10  
 cct tcg gat gct gtg ggc tac agg caa gaa cgt gag ggc ttc ctg ccc 336  
 Pro Ser Asp Ala Val Gly Tyr Arg Gln Glu Arg Glu Gly Phe Leu Pro  
 13                  18                  23                  28  
 agt cgt ggt cct gct cct ggg agc aag ccg gtc cag ttc atg gat ttc 384  
 Ser Arg Gly Pro Ala Pro Gly Ser Lys Pro Val Gln Phe Met Asp Phe  
 29                  34                  39                  44  
 gag ggg aag aca tcg ttt gga atg tca gtg ttc aac ctc agc aac gcc 432  
 Glu Gly Lys Thr Ser Phe Gly Met Ser Val Phe Asn Leu Ser Asn Ala  
 45                  50                  55                  60  
 atc atg ggc agc ggc atc ctg ggg ctg gcc tat gcc atg gcc cac acg 480  
 Ile Met Gly Ser Gly Ile Leu Gly Leu Ala Tyr Ala Met Ala His Thr  
 61                  66                  71                  76  
 ggg gtc atc ttc ttc ctg gcc ctg ctg ctg tgc att gcg ctt ctg tcg 528  
 Gly Val Ile Phe Phe Leu Ala Leu Leu Leu Cys Ile Ala Leu Leu Ser  
 77                  82                  87                  92  
 tcc tac tcc atc cac ctc ctg ctg acc tgt gct ggt att gca ggc atc 576



Ser	Tyr	Ser	Ile	His	Leu	Leu	Leu	Thr	Cys	Ala	Gly	Ile	Ala	Gly	Ile		
93					98					103					108		
cga	gcc	tat	gag	cag	ctg	gga	cag	agg	gca	ttc	ggg	cct	gcg	ggg	aag		624
Arg	Ala	Tyr	Glu	Gln	Leu	Gly	Gln	Arg	Ala	Phe	Gly	Pro	Ala	Gly	Lys		
109					114					119					124		
gta	gtg	gtg	gcc	aca	gtc	atc	tgt	ctg	cac	aat	ggt	ggg	gcc	atg	tcc		672
Val	Val	Val	Ala	Thr	Val	Ile	Cys	Leu	His	Asn	Val	Gly	Ala	Met	Ser		
125					130					135					140		
agt	tac	ctg	ttc	atc	atc	aaa	tct	gag	ctc	ccc	ctg	ggt	atc	ggc	acc		720
Ser	Tyr	Leu	Phe	Ile	Ile	Lys	Ser	Glu	Leu	Pro	Leu	Val	Ile	Gly	Thr		
141					146					151					156		
ttc	ctg	tac	atg	gac	ccc	gag	ggg	gac	tgg	ttc	ttg	aag	gga	aac	ctc		768
Phe	Leu	Tyr	Met	Asp	Pro	Glu	Gly	Asp	Trp	Phe	Leu	Lys	Gly	Asn	Leu		
157					162					167					172		
ctc	atc	atc	atc	gtc	agt	gtg	tta	atc	atc	ctg	ccc	ctc	gcc	ctc	atg		816
Leu	Ile	Ile	Ile	Val	Ser	Val	Leu	Ile	Ile	Leu	Pro	Leu	Ala	Leu	Met		
173					178					183					188		
aaa	cac	ttg	ggc	tac	ctg	ggg	tac	acc	agt	ggt	ctc	tct	ctg	acc	tgc		864
Lys	His	Leu	Gly	Tyr	Leu	Gly	Tyr	Thr	Ser	Gly	Leu	Ser	Leu	Thr	Cys		
189					194					199					204		
atg	ctg	ttt	ttc	ctt	ggt	tgc	gtc	atc	tac	aag	aag	ttc	caa	ctt	ggc		912
Met	Leu	Phe	Phe	Leu	Val	Ser	Val	Ile	Tyr	Lys	Lys	Phe	Gln	Leu	Gly		
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tgt	gct	ata	ggc	cac	aat	gaa	aca	gca	atg	gag	agt	gaa	gct	ctc	gtg		960
Cys	Ala	Ile	Gly	His	Asn	Glu	Thr	Ala	Met	Glu	Ser	Glu	Ala	Leu	Val		
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gga	ctc	ccc	agc	caa	gga	ctc	aac	agc	agc	tgt	gag	gcc	cag	atg	ttc		1008
Gly	Leu	Pro	Ser	Gln	Gly	Leu	Asn	Ser	Ser	Cys	Glu	Ala	Gln	Met	Phe		
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aca	gtt	gac	tca	cag	atg	tcc	tac	aca	gtg	ccc	att	atg	gct	ttt	gct		1056
Thr	Val	Asp	Ser	Gln	Met	Ser	Tyr	Thr	Val	Pro	Ile	Met	Ala	Phe	Ala		
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ttt	gtc	tgc	cac	cct	gag	gtg	ctg	ccc	atc	tat	acg	gag	ctc	tgc	cgg		1104
Phe	Val	Cys	His	Pro	Glu	Val	Leu	Pro	Ile	Tyr	Thr	Glu	Leu	Cys	Arg		
269					274					279					284		
ccc	tcc	aag	cgc	agg	atg	cag	gcc	gtg	gcc	aac	gtg	tcc	att	ggg	gcc		1152
Pro	Ser	Lys	Arg	Arg	Met	Gln	Ala	Val	Ala	Asn	Val	Ser	Ile	Gly	Ala		
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atg	ttc	tgc	atg	tat	ggg	ctc	aca	gca	acc	ttt	gga	tac	ctc	acc	ttc		1200
Met	Phe	Cys	Met	Tyr	Gly	Leu	Thr	Ala	Thr	Phe	Gly	Tyr	Leu	Thr	Phe		
301					306					311					316		
tac	agc	agt	gtg	aag	gcg	gag	atg	ctg	cac	atg	tac	agc	cag	aag	gac		1248
Tyr	Ser	Ser	Val	Lys	Ala	Glu	Met	Leu	His	Met	Tyr	Ser	Gln	Lys	Asp		

317	322	327	332	
ccg ctc atc ctc tgt gtg cgc ctg gcc gtg ctg ctc gcg gtg acc ctc				1296
Pro Leu Ile Leu Cys Val Arg Leu Ala Val Leu Leu Ala Val Thr Leu				
333	338	343	348	
act gtg cca gtc gtg ctg ttc cct atc cgc cgg gcc ctg cag cag ctg				1344
Thr Val Pro Val Val Leu Phe Pro Ile Arg Arg Ala Leu Gln Gln Leu				
349	354	359	364	
ctt ttc cca ggc aag gcc ttc agc tgg cca cga cat gtg gcc ata gct				1392
Leu Phe Pro Gly Lys Ala Phe Ser Trp Pro Arg His Val Ala Ile Ala				
365	370	375	380	
ctg atc ctg ctt gtt ttg gtc aat gtc ctt gtc atc tgt gtg cca acc				1440
Leu Ile Leu Leu Val Leu Val Asn Val Leu Val Ile Cys Val Pro Thr				
381	386	391	396	
atc cgg gat atc ttt gga gtt atc ggg tcc acc tca gcc ccc agc ctc				1488
Ile Arg Asp Ile Phe Gly Val Ile Gly Ser Thr Ser Ala Pro Ser Leu				
397	402	407	412	
atc ttc atc ctc ccc agc atc ttc tac ctc cgc att gta ccc tct gag				1536
Ile Phe Ile Leu Pro Ser Ile Phe Tyr Leu Arg Ile Val Pro Ser Glu				
413	418	423	428	
gtg gag cct ttc tta tcc tgg ccc aag atc cag gcc ctg tgc ttt gga				1584
Val Glu Pro Phe Leu Ser Trp Pro Lys Ile Gln Ala Leu Cys Phe Gly				
429	434	439	444	
gtc ctg gga gtc ctc ttc atg gcc gtc agt cta ggc ttt atg ttt gcc				1632
Val Leu Gly Val Leu Phe Met Ala Val Ser Leu Gly Phe Met Phe Ala				
445	450	455	460	
aac tgg gcc aca ggc cag agc cgc atg tct gga cac tga tcaggccctg				1681
Asn Trp Ala Thr Gly Gln Ser Arg Met Ser Gly His *				
461	466	471		
ctggcccagg tccctgtgcg catgcacatg gaggggtcag ggccgctccc tagggctcct				1741
cctgcccaac atgtggaggt ggctgggttcc catgaacgtg gttgtcagag gcgggggaca				1801
gcagaggctg cagactggcc cacttccctc ctccccaggg atgccaagct tggatcatgg				1861
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gcttccatca cccttccctt aatgccagga gcgccgaggt ttggaactga ggctaaaccg      180
aaggctttct cctgcttctg tcacctgtg ctgtctcccg gcctctctc actatctggg      240
tccaggcccg ggtcctccct gcagactccc tcccctccag ccacaaagga ctccagcctg      300
ctggctgggt agagctggat gagcagtaag aagttaacgc caggtcagcc tcgggccccca      360
gggttccctg ggcacaggct gacactagga gctgctctcc ttggccgggg acagctccag      420
cagctcaggc tccagccctc cagtgcgagc cctctcctgg agagtagcaa agaattggaga      480
aaggcctggc ttgagaggaa atggagaaaa cattgcctgg tagctgcaga ttcaaaccga      540
ccacacacac cacggggcta gactgactca cctgggctca caccaacttc tggccaatgc      600
agggacc  atg ctc tgc aga cag cag tcc tct agc atg gcc cca gca ttc      649
          Met Leu Cys Arg Gln Gln Ser Ser Ser Met Ala Pro Ala Phe
          1             5             10

agc cag tgc gtc acc tgt ggg cca tcc cca tgt gtg agg aag cag gag      697
Ser Gln Ser Val Thr Cys Gly Pro Ser Pro Cys Val Arg Lys Gln Glu
  15             20             25             30

tca gcc acc aag tgt ctc cac atc gga gct tgc ggg tca gac ctg tgg      745
Ser Ala Thr Lys Cys Leu His Ile Gly Ala Cys Gly Ser Asp Leu Trp
  31             36             41             46

gcc agg gga tgg gag cag ggc tga gggtaggggc tgaatgtgtg gctctgtccc      799
Ala Arg Gly Trp Glu Gln Gly  *
  47             52

tgtgttgctt tccacagagg agcaaggcct caggctgagg aaggaggggc acgttggaac      859
agcctagtct cctccccgtg gattccccca aaccataaac attcttccat aggggctgag      919
aacgcagtgc cccgtccctg acagggatga aaagtgaacc cctcaggtca ggagaggcag      979
agttgaggtt ctgccacttc ctgtccctgg ggagccactc aagttaccag ggctaccggc     1039
tgaaataaat cttttccggg tagggtoaag ggcagtgtgt tccaaggcaa ctgatgtagg     1099
ccagttgcgt gactccaggt ttgtcctggt actcagtggg tccaatcacc tggcattgat     1159
cacctggcat tgatcagcac ccaccccacc cctgaggctt gccagcccc caggccctca     1219
gatccctgct cttcctgcct ttctgcccc tgtgtcacc agcacccaag gttcagtga      1279
acagggtggt ttggagctgg tcaactgtcat agcagctgtg atttcacaag gaagggtgct     1339
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 taaaaaaaaa a 1410

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 <222> (528) .. (1604)

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 cttgtttcca tgacggcacg tgcgtccttg acaaggctgg atcttacaag tgtgcctgct 180  
 tggcaggcta tactgggcag cgctgtgaaa atcttctgga ggctgggaag tccaagatca 240  
 aggcgtcaga agattcattg tctgtccttg aagaaagaaa ctgctcagac cctggggggcc 300  
 cagtcaatgg gtaccagaaa ataacagggg gccctgggct tatcaacgga cgccatgcta 360  
 aaattggcac cgtgggtgtct ttcttttgta acaactccta tgttcttagt ggcaatgaga 420  
 aaagaacttg ccagcagaat ggagagtggc cagggaaaca gcccatctgc ataaaagcct 480  
 gccgagaacc aaagatttca gacctggtga gaaggagagt tottccg atg cag gtt 536  
 Met Gln Val  
 1  
 cag tca agg gag aca cca tta cac cag cta tac tca gcg gcc ttc agc 584  
 Gln Ser Arg Glu Thr Pro Leu His Gln Leu Tyr Ser Ala Ala Phe Ser  
 4 9 14 19  
 aag cag aaa ctg cag agt gcc cct acc aag aag cca gcc ctt ccc ttt 632  
 Lys Gln Lys Leu Gln Ser Ala Pro Thr Lys Lys Pro Ala Leu Pro Phe  
 20 25 30 35  
 gga gat ctg ccc atg gga tac caa cat ctg cat acc cag ctc cag tat 680  
 Gly Asp Leu Pro Met Gly Tyr Gln His Leu His Thr Gln Leu Gln Tyr  
 36 41 46 51  
 gag tgc atc tca ccc ttc tac cgc cgc ctg ggc agc agc agg agg aca 728  
 Glu Cys Ile Ser Pro Phe Tyr Arg Arg Leu Gly Ser Ser Arg Arg Thr  
 52 57 62 67  
 tgt ctg agg act ggg aag tgg agt ggg cgg gca cca tcc tgc atc cct 776  
 Cys Leu Arg Thr Gly Lys Trp Ser Gly Arg Ala Pro Ser Cys Ile Pro  
 68 73 78 83

1000  
 900  
 800  
 700  
 600  
 500  
 400  
 300  
 200  
 100  
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atc tgc ggg aaa att gag aac atc act gct cca aag acc caa ggg ttg	824
Ile Cys Gly Lys Ile Glu Asn Ile Thr Ala Pro Lys Thr Gln Gly Leu	
84 89 94 99	
cgc tgg ccg tgg cag gca gcc atc tac agg agg acc agc ggg gtg cat	872
Arg Trp Pro Trp Gln Ala Ala Ile Tyr Arg Arg Thr Ser Gly Val His	
100 105 110 115	
gac ggc agc cta cac aag gga gcg tgg ttc cta gtc tgc agc ggt gcc	920
Asp Gly Ser Leu His Lys Gly Ala Trp Phe Leu Val Cys Ser Gly Ala	
116 121 126 131	
ctg gtg aat gag cgc act gtg gtg gtg gct gcc cac tgt gtt act gac	968
Leu Val Asn Glu Arg Thr Val Val Val Ala Ala His Cys Val Thr Asp	
132 137 142 147	
ctg ggg aag gtc acc atg atc aag aca gca gac ctg aaa gtt gtt ttg	1016
Leu Gly Lys Val Thr Met Ile Lys Thr Ala Asp Leu Lys Val Val Leu	
148 153 158 163	
ggg aaa ttc tac cgg gat gat gac cgg gat gag aag acc atc cag agc	1064
Gly Lys Phe Tyr Arg Asp Asp Asp Arg Asp Glu Lys Thr Ile Gln Ser	
164 169 174 179	
cta cag att tct gct atc att ctg cat ccc aac tat gac ccc atc ctg	1112
Leu Gln Ile Ser Ala Ile Ile Leu His Pro Asn Tyr Asp Pro Ile Leu	
180 185 190 195	
ctt gat gct gac atc gcc atc ctg aag ctc cta gac aag gcc cgt atc	1160
Leu Asp Ala Asp Ile Ala Ile Leu Lys Leu Leu Asp Lys Ala Arg Ile	
196 201 206 211	
agc acc cga gtc cag ccc atc tgc ctc gct gcc agt cgg gat ctc agc	1208
Ser Thr Arg Val Gln Pro Ile Cys Leu Ala Ser Arg Asp Leu Ser	
212 217 222 227	
act tcc ttc cag gag tcc cac atc act gtg gct ggc tgg aat gtc ctg	1256
Thr Ser Phe Gln Glu Ser His Ile Thr Val Ala Gly Trp Asn Val Leu	
228 233 238 243	
gca gac gtg agg agc cct ggc ttc aag aac gac aca ctg cgc tct ggg	1304
Ala Asp Val Arg Ser Pro Gly Phe Lys Asn Asp Thr Leu Arg Ser Gly	
244 249 254 259	
gtg gtc agt gtg gtg gac tcg ctg ctg tgt gag gag cag cat gag gac	1352
Val Val Ser Val Val Asp Ser Leu Leu Cys Glu Glu Gln His Glu Asp	
260 265 270 275	
cat ggc atc cca gtg agt gtc act gat aac atg ttc tgt gcc agc tgg	1400
His Gly Ile Pro Val Ser Val Thr Asp Asn Met Phe Cys Ala Ser Trp	
276 281 286 291	
gaa ccc act gcc cct tct gat atc tgc act gca gag aca gga ggc atc	1448
Glu Pro Thr Ala Pro Ser Asp Ile Cys Thr Ala Glu Thr Gly Gly Ile	
292 297 302 307	

gcg gct gtg tcc ttc ccg gga cga gca tct cct gag cca cgc tgg cat	1496
Ala Ala Val Ser Phe Pro Gly Arg Ala Ser Pro Glu Pro Arg Trp His	
308 313 318 323	
ctg atg gga ctg gtc agc tgg agc tat gat aaa aca tgc agc cac agg	1544
Leu Met Gly Leu Val Ser Trp Ser Tyr Asp Lys Thr Cys Ser His Arg	
324 329 334 339	
ctc tcc act gcc ttc acc aag gtg ctg cct ttt aaa gac tgg att gaa	1592
Leu Ser Thr Ala Phe Thr Lys Val Leu Pro Phe Lys Asp Trp Ile Glu	
340 345 350 355	
aga aat atg aaa tga accatgctca tgcactcctt gagaagtgtt tctgtatatc	1647
Arg Asn Met Lys	
356	
cgtctgtacg tgtgtcattg cgtgaagcag tgtgggcctg aagtgtgatt tggcctgtga	1707
acttggtgtg gccagggctt ctgacttcag ggacaaaact cagtgaaggg tgagtagacc	1767
tccattgctg gtaggctgat gccgcctcca ctactaggac agccaattgg aagatgccag	1827
ggcttgcaag aagtaagttt cttcaaagaa gaccatatac aaaacctctc cactccactg	1887
acctgggtggt cttccccaac tttcagttat acgaatgcc aacagcttgac cagggaagat	1947
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cccagggcag cagagctggg atgtgggtgca tgcctttgtg tacatggcca cagtacagtc	2067
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 <222> (356)..(1924)

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ctaaccggg aagcggcagc tgagcggggc gggaggagcg ccgggtccccg tggatccccg	180
gagtgcagag ctcggggcag gggccgggag gcgtggggga gccggggcctt cccctcagga	240
acgtgtcccc gggccgaccc ggcccgtagt gtggaagcag cttcaggtag gtgagctcgt	300



Ile Cys Trp Gln Tyr Thr Ser Glu Gly Arg Glu Pro Lys Leu Asn Asp	
210 215 220 225	
aat gtc agt gcc tac tgc ctg cat att gct gag gat gat ggg gag gtg	1078
Asn Val Ser Ala Tyr Cys Leu His Ile Ala Glu Asp Asp Gly Glu Val	
226 231 236 241	
gac acc gat ttc ccc ccg ctg gat tcc aat gag ccc att cat aag ttt	1126
Asp Thr Asp Phe Pro Pro Leu Asp Ser Asn Glu Pro Ile His Lys Phe	
242 247 252 257	
ggc ttc agt act ttg gcc ctg gtt gaa aag tac tca tct cct ggt ctg	1174
Gly Phe Ser Thr Leu Ala Leu Val Glu Lys Tyr Ser Ser Pro Gly Leu	
258 263 268 273	
aca tcc aaa gag tca ctc ttt gtt cga ata aat gct gct cat gga ttc	1222
Thr Ser Lys Glu Ser Leu Phe Val Arg Ile Asn Ala Ala His Gly Phe	
274 279 284 289	
tcc ctt att cag gtg gac aac aca aag gtt acc atg aag gaa atc tta	1270
Ser Leu Ile Gln Val Asp Asn Thr Lys Val Thr Met Lys Glu Ile Leu	
290 295 300 305	
ctg aag gca gtg aag cga aga aaa gga tcc cag aaa gtt tca ggc cct	1318
Leu Lys Ala Val Lys Arg Arg Lys Gly Ser Gln Lys Val Ser Gly Pro	
306 311 316 321	
cag tac cgc ctg gag aag cag agc gag ccc aat gtc gcc gtt gac ctg	1366
Gln Tyr Arg Leu Glu Lys Gln Ser Glu Pro Asn Val Ala Val Asp Leu	
322 327 332 337	
gac agc act ttg gag agc cag agc gca tgg gag ttc tgc ctg gtc cgc	1414
Asp Ser Thr Leu Glu Ser Gln Ser Ala Trp Glu Phe Cys Leu Val Arg	
338 343 348 353	
gag aac agt tca agg gca gac ggg gtt ttt gag gag gat tcg caa att	1462
Glu Asn Ser Ser Arg Ala Asp Gly Val Phe Glu Glu Asp Ser Gln Ile	
354 359 364 369	
gac ata gcc aca gta cag gat atg ctt agc agc cac cat tac aag tca	1510
Asp Ile Ala Thr Val Gln Asp Met Leu Ser Ser His His Tyr Lys Ser	
370 375 380 385	
ttc aaa gtc agc atg atc cac aga ctg cga ttc aca acc gac gta cag	1558
Phe Lys Val Ser Met Ile His Arg Leu Arg Phe Thr Thr Asp Val Gln	
386 391 396 401	
cta ggt atc tct gga gac aaa gta gag ata gac cct gtt acg aat cag	1606
Leu Gly Ile Ser Gly Asp Lys Val Glu Ile Asp Pro Val Thr Asn Gln	
402 407 412 417	
aaa gcc agc act aag ttt tgg att aag cag aaa ccc atc tca atc gat	1654
Lys Ala Ser Thr Lys Phe Trp Ile Lys Gln Lys Pro Ile Ser Ile Asp	
418 423 428 433	
tcc gac ctg ctc tgt gcc tgt gac ctt gct gaa gag aaa agc ccc agt	1702
Ser Asp Leu Leu Cys Ala Cys Asp Leu Ala Glu Glu Lys Ser Pro Ser	



434	439	444	449	
cac gca ata ttt aaa ctc acg tat cta agc aat cac gac tat aaa cac				1750
His Ala Ile Phe Lys Leu Thr Tyr Leu Ser Asn His Asp Tyr Lys His				
450	455	460	465	
ctc tac ttt gaa tcg gac gct gct acc gtc aat gaa att gtg ctc aag				1798
Leu Tyr Phe Glu Ser Asp Ala Ala Thr Val Asn Glu Ile Val Leu Lys				
466	471	476	481	
gtt aac tac atc ctg gaa tcg cga gct agc act gcc cgg gct gac tac				1846
Val Asn Tyr Ile Leu Glu Ser Arg Ala Ser Thr Ala Arg Ala Asp Tyr				
482	487	492	497	
ttt gct caa aaa caa aga aaa ctg aac aga cgt acg agc ttc agc ttc				1894
Phe Ala Gln Lys Gln Arg Lys Leu Asn Arg Arg Thr Ser Phe Ser Phe				
498	503	508	513	
cag aag gag aag aaa tcc ggg cag cag tga c actggcctcc agcctcaatc				1945
Gln Lys Glu Lys Lys Ser Gly Gln Gln *				
514	519			
tggtccgtag ctcagagcct gcctgccagg gccaaagtgcc ctagagccca cccggtgtcc				2005
tgaagtcctc ggggggaggc cagccccctgg ctactggca cagggcaggt gggctctcgg				2065
ggaaggtgtc gggggccccc ctaggaggga gcgctgggga cattgccatg ggacggaagt				2125
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acgtgccgcc cagccacctt caatgcctgc caccctgccc gaggatgtac agagccgtgc				2245
ccacacattt ccttgcaact tgatcaaatt tottaaagca aacaacaaaa atgtacattt				2305
ctgtttttcc ttttaataaa caggtgtact ctttaaaaaa aaaaaa				2351

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ctaaccgggg aagcggcagc tgagcggggc gggaggagcg ccgggtccccg tggatccccga	180
gagtgcagag ctgggggcag gggccgggag gcgtggggga gccggggcct cccctcagga	240

acgtgtcccg gggccgaccc ggcccgtagt gtggaagcag cttcaggtag gtgagctcgt 300

gaaacaatat gaagaggaga aaatagcctt ttaaggaaat tggccacag aaagg atg 358  
Met  
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gcc ttc ttg gac aat cca act atc att cta gct cat att cga cag tca 406  
Ala Phe Leu Asp Asn Pro Thr Ile Ile Leu Ala His Ile Arg Gln Ser  
2 7 12 17

cat gtg acc agt gat gac acg gga atg tgt gag atg gtt ctc att gat 454  
His Val Thr Ser Asp Asp Thr Gly Met Cys Glu Met Val Leu Ile Asp  
18 23 28 33

cat gat gtt gac cta gag aag att cat cct cct tca atg cct gga gac 502  
His Asp Val Asp Leu Glu Lys Ile His Pro Pro Ser Met Pro Gly Asp  
34 39 44 49

agt ggg tca gaa att cag gga agc aat ggt gag act cag ggc tat gta 550  
Ser Gly Ser Glu Ile Gln Gly Ser Asn Gly Glu Thr Gln Gly Tyr Val  
50 55 60 65

tat gcc cag tca gtc gat att acc tca agt tgg gac ttt ggt att aga 598  
Tyr Ala Gln Ser Val Asp Ile Thr Ser Ser Trp Asp Phe Gly Ile Arg  
66 71 76 81

aga cgc tca aac aca gct caa aga tta gaa cga ctc cga aaa gag aga 646  
Arg Arg Ser Asn Thr Ala Gln Arg Leu Glu Arg Leu Arg Lys Glu Arg  
82 87 92 97

caa aac cag atc aaa tgc aaa aat att cag tgg aaa gaa aga aat tct 694  
Gln Asn Gln Ile Lys Cys Lys Asn Ile Gln Trp Lys Glu Arg Asn Ser  
98 103 108 113

aag caa tca gcc cag gag tta aag tca ctg ttt gaa aaa aaa tct ctc 742  
Lys Gln Ser Ala Gln Glu Leu Lys Ser Leu Phe Glu Lys Lys Ser Leu  
114 119 124 129

aaa gag aag cct cca att tct ggg aag cag tcg ata tta tct gta cgc 790  
Lys Glu Lys Pro Pro Ile Ser Gly Lys Gln Ser Ile Leu Ser Val Arg  
130 135 140 145

cta gaa cag tgc cct ctg cag ctg aat aac cct ttt aac gag tat tcc 838  
Leu Glu Gln Cys Pro Leu Gln Leu Asn Asn Pro Phe Asn Glu Tyr Ser  
146 151 156 161

aaa ttt gat ggc aag ggt cat gta ggt aca aca gca acc aag aag atc 886  
Lys Phe Asp Gly Lys Gly His Val Gly Thr Thr Ala Thr Lys Lys Ile  
162 167 172 177

gat gtc tac ctc cct ctg cac tcg agc cag gac aga ctg ctg cca atg 934  
Asp Val Tyr Leu Pro Leu His Ser Ser Gln Asp Arg Leu Leu Pro Met  
178 183 188 193

acc gtg gtg aca atg gcc agc gcc agg gtg cag gac ctg atc ggg ctc 982  
Thr Val Val Thr Met Ala Ser Ala Arg Val Gln Asp Leu Ile Gly Leu  
194 199 204 209

atc tgc tgg cag tat aca agc gaa gga cgg gag ccg aag ctc aat gac	1030
Ile Cys Trp Gln Tyr Thr Ser Glu Gly Arg Glu Pro Lys Leu Asn Asp	
210 215 220 225	
aat gtc agt gcc tac tgc ctg cat att gct gag gat gat ggg gag gtg	1078
Asn Val Ser Ala Tyr Cys Leu His Ile Ala Glu Asp Asp Gly Glu Val	
226 231 236 241	
gac acc gat ttc ccc ccg ctg gat tcc aat gag ccc att cat aag ttt	1126
Asp Thr Asp Phe Pro Pro Leu Asp Ser Asn Glu Pro Ile His Lys Phe	
242 247 252 257	
ggc ttc agt act ttg gcc ctg gtt gaa aag tac tca tct cct ggt ctg	1174
Gly Phe Ser Thr Leu Ala Leu Val Glu Lys Tyr Ser Ser Pro Gly Leu	
258 263 268 273	
aca tcc aaa gag tca ctc ttt gtt cga ata aat gct gct cat gga ttc	1222
Thr Ser Lys Glu Ser Leu Phe Val Arg Ile Asn Ala Ala His Gly Phe	
274 279 284 289	
tcc ctt att cag gtg gac aac aca aag gtt acc atg aag gaa atc tta	1270
Ser Leu Ile Gln Val Asp Asn Thr Lys Val Thr Met Lys Glu Ile Leu	
290 295 300 305	
ctg aag gca gtg aag cga aga aaa gga tcc cag aaa gtt tca ggt tca	1318
Leu Lys Ala Val Lys Arg Arg Lys Gly Ser Gln Lys Val Ser Gly Ser	
306 311 316 321	
agg gca gac ggg gtt ttt gag gag gat tcg caa att gac ata gcc aca	1366
Arg Ala Asp Gly Val Phe Glu Glu Asp Ser Gln Ile Asp Ile Ala Thr	
322 327 332 337	
gta cag gat atg ctt agc agc cac cat tac aag tca ttc aaa gtc agc	1414
Val Gln Asp Met Leu Ser Ser His His Tyr Lys Ser Phe Lys Val Ser	
338 343 348 353	
atg atc cac aga ctg cga ttc aca acc gac gta cag cta ggt atc tct	1462
Met Ile His Arg Leu Arg Phe Thr Thr Asp Val Gln Leu Gly Ile Ser	
354 359 364 369	
gga gac aaa gta gag ata gac cct gtt acg aat cag aaa gcc agc act	1510
Gly Asp Lys Val Glu Ile Asp Pro Val Thr Asn Gln Lys Ala Ser Thr	
370 375 380 385	
aag ttt tgg att aag cag aaa ccc atc tca atc gat tcc gac ctg ctc	1558
Lys Phe Trp Ile Lys Gln Lys Pro Ile Ser Ile Asp Ser Asp Leu Leu	
386 391 396 401	
tgt gcc tgt gac ctt gct gaa gag aaa agc ccc agt cac gca ata ttt	1606
Cys Ala Cys Asp Leu Ala Glu Glu Lys Ser Pro Ser His Ala Ile Phe	
402 407 412 417	
aaa ctc acg tat cta agc aat cac gac tat aaa cac ctc tac ttt gaa	1654
Lys Leu Thr Tyr Leu Ser Asn His Asp Tyr Lys His Leu Tyr Phe Glu	
418 423 428 433	

tcg gac gct gct acc gtc aat gaa att gtg ctc aag gtt aac tac atc	1702
Ser Asp Ala Ala Thr Val Asn Glu Ile Val Leu Lys Val Asn Tyr Ile	
434 439 444 449	
ctg gaa tcg cga gct agc act gcc cgg gct gac tac ttt gct caa aaa	1750
Leu Glu Ser Arg Ala Ser Thr Ala Arg Ala Asp Tyr Phe Ala Gln Lys	
450 455 460 465	
caa aga aaa ctg aac aga cgt acg agc ttc agc ttc cag aag gag aag	1798
Gln Arg Lys Leu Asn Arg Arg Thr Ser Phe Ser Phe Gln Lys Glu Lys	
466 471 476 481	
aaa tcc ggg cag cag tga cactgg cctccagcct caatctgttc cgtagctcag	1852
Lys Ser Gly Gln Gln *	
482 487	
agcctgcctg ccagggccaa gtgccctaga gccacccgg tgtcctgaag tcctcggggg	1912
gaggccagcc cctggctcac tggcacaggg caggtgggct ctcggggaag gtgtcggggg	1972
ccccctagg agggagcgt ggggacattg ccatgggacg gaagtctgct tggcagtggc	2032
tttgataagc gatgcttggg ggtcagacca ccccctagag gagccacgtg ccgcccagcc	2092
accttcaatg cctgccaccc tgcccagga tgtacagagc cgtgccaca catttccttg	2152
caacttgatc aaattttctta aagcaaaca caaaaatgta catttctgtt tttcctttta	2212
ataaacaggt gtactcttta aaaaaaaaa a	2243

<210> 1009  
 <211> 2210  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (356)..(1783)

<400> 1009	
cggccccttg aacccatcga taccgctccg gaattcccgg gtcgaccac gcgtccgggc	60
tcggggtaat agggctgctg ctcgccgggc cggcggcggc gagcagcagg ggcatgaggg	120
ctaaccggg aagcggcagc tgagcgggccc gggaggagcg ccgggtccccg tggatccccg	180
gagtgcagag ctcggggcag gggccgggag gcgtggggga gccgggccct cccctcagga	240
acgtgtcccc gggccgaccc ggcccgtagt gtggaagcag cttcaggtag gtgagctcgt	300
gaaacaatat gaagaggaga aaatagcctt ttaaggaaat tggccacag aaagg atg	358
Met	

gcc ttc ttg gac aat cca act atc att cta gct cat att cga cag tca	406
Ala Phe Leu Asp Asn Pro Thr Ile Ile Leu Ala His Ile Arg Gln Ser	
2 7 12 17	
cat gtg acc agt gat gac acg gga atg tgt gag atg gtt ctc att gat	454
His Val Thr Ser Asp Asp Thr Gly Met Cys Glu Met Val Leu Ile Asp	
18 23 28 33	
cat gat gtt gac cta gag aag att cat cct cct tca atg cct gga gac	502
His Asp Val Asp Leu Glu Lys Ile His Pro Pro Ser Met Pro Gly Asp	
34 39 44 49	
agt ggg tca gaa att cag gga agc aat ggt gag act cag ggc tat gta	550
Ser Gly Ser Glu Ile Gln Gly Ser Asn Gly Glu Thr Gln Gly Tyr Val	
50 55 60 65	
tat gcc cag tca gtc gat att acc tca agt tgg gac ttt ggt att aga	598
Tyr Ala Gln Ser Val Asp Ile Thr Ser Ser Trp Asp Phe Gly Ile Arg	
66 71 76 81	
aga cgc tca aac aca gct caa aga tta gaa cga ctc cga aaa gag aga	646
Arg Arg Ser Asn Thr Ala Gln Arg Leu Glu Arg Leu Arg Lys Glu Arg	
82 87 92 97	
caa aac cag atc aaa tgc aaa aat att cag tgg aaa gaa aga aat tct	694
Gln Asn Gln Ile Lys Cys Lys Asn Ile Gln Trp Lys Glu Arg Asn Ser	
98 103 108 113	
aag caa tca gcc cag gag tta aag tca ctg ttt gaa aaa aaa tct ctc	742
Lys Gln Ser Ala Gln Glu Leu Lys Ser Leu Phe Glu Lys Lys Ser Leu	
114 119 124 129	
aaa gag aag cct cca att tct ggg aag cag tcg ata tta tct gta cgc	790
Lys Glu Lys Pro Pro Ile Ser Gly Lys Gln Ser Ile Leu Ser Val Arg	
130 135 140 145	
cta gaa cag tgc cct ctg cag ctg aat aac cct ttt aac gag tat tcc	838
Leu Glu Gln Cys Pro Leu Gln Leu Asn Asn Pro Phe Asn Glu Tyr Ser	
146 151 156 161	
aaa ttt gat ggc aag ggt cat gta ggt aca aca gca acc aag aag atc	886
Lys Phe Asp Gly Lys Gly His Val Gly Thr Thr Ala Thr Lys Lys Ile	
162 167 172 177	
gat gtc tac ctc cct ctg cac tcg agc cag gac aga ctg ctg cca atg	934
Asp Val Tyr Leu Pro Leu His Ser Ser Gln Asp Arg Leu Leu Pro Met	
178 183 188 193	
acc gtg gtg aca atg gcc agc gcc agg gtg cag gac ctg atc ggg ctc	982
Thr Val Val Thr Met Ala Ser Ala Arg Val Gln Asp Leu Ile Gly Leu	
194 199 204 209	
atc tgc tgg cag tat aca agc gaa gga cgg gag ccg aag ctc aat gac	1030
Ile Cys Trp Gln Tyr Thr Ser Glu Gly Arg Glu Pro Lys Leu Asn Asp	
210 215 220 225	
aat gtc agt gcc tac tgc ctg cat att gct gag gat gat ggg gag gtg	1078

Asn Val Ser Ala Tyr Cys Leu His Ile Ala Glu Asp Asp Gly Glu Val	
226 231 236 241	
gac acc gat ttc ccc ccg ctg gat tcc aat gag ccc att cat aag ttt	1126
Asp Thr Asp Phe Pro Pro Leu Asp Ser Asn Glu Pro Ile His Lys Phe	
242 247 252 257	
ggc ttc agt act ttg gcc ctg gtt gaa aag tac tca tct cct ggt ctg	1174
Gly Phe Ser Thr Leu Ala Leu Val Glu Lys Tyr Ser Ser Pro Gly Leu	
258 263 268 273	
aca tcc aaa gag tca ctc ttt gtt cga ata aat gct gct cat gga ttc	1222
Thr Ser Lys Glu Ser Leu Phe Val Arg Ile Asn Ala Ala His Gly Phe	
274 279 284 289	
tcc ctt att cag gtg gac aac aca aag gtt acc atg aag gaa atc tta	1270
Ser Leu Ile Gln Val Asp Asn Thr Lys Val Thr Met Lys Glu Ile Leu	
290 295 300 305	
ctg aag gca gtg aag cga aga aaa gga tcc cag aaa gtt tca ggc cct	1318
Leu Lys Ala Val Lys Arg Arg Lys Gly Ser Gln Lys Val Ser Gly Pro	
306 311 316 321	
cag tac cgc ctg gag aag cag agc gag ccc aat gtc gcc gtt gac ctg	1366
Gln Tyr Arg Leu Glu Lys Gln Ser Glu Pro Asn Val Ala Val Asp Leu	
322 327 332 337	
gac agc act ttg gag agc cag agc gca tgg gag ttc tgc ctg gtc cgc	1414
Asp Ser Thr Leu Glu Ser Gln Ser Ala Trp Glu Phe Cys Leu Val Arg	
338 343 348 353	
gag aac agt atc tct gga gac aaa gta gag ata gac cct gtt acg aat	1462
Glu Asn Ser Ile Ser Gly Asp Lys Val Glu Ile Asp Pro Val Thr Asn	
354 359 364 369	
cag aaa gcc agc act aag ttt tgg att aag cag aaa ccc atc tca atc	1510
Gln Lys Ala Ser Thr Lys Phe Trp Ile Lys Gln Lys Pro Ile Ser Ile	
370 375 380 385	
gat tcc gac ctg ctc tgt gcc tgt gac ctt gct gaa gag aaa agc ccc	1558
Asp Ser Asp Leu Leu Cys Ala Cys Asp Leu Ala Glu Glu Lys Ser Pro	
386 391 396 401	
agt cac gca ata ttt aaa ctc acg tat cta agc aat cac gac tat aaa	1606
Ser His Ala Ile Phe Lys Leu Thr Tyr Leu Ser Asn His Asp Tyr Lys	
402 407 412 417	
cac ctc tac ttt gaa tcg gac gct gct acc gtc aat gaa att gtg ctc	1654
His Leu Tyr Phe Glu Ser Asp Ala Ala Thr Val Asn Glu Ile Val Leu	
418 423 428 433	
aag gtt aac tac atc ctg gaa tcg cga gct agc act gcc cgg gct gac	1702
Lys Val Asn Tyr Ile Leu Glu Ser Arg Ala Ser Thr Ala Arg Ala Asp	
434 439 444 449	
tac ttt gct caa aaa caa aga aaa ctg aac aga cgt acg agc ttc agc	1750
Tyr Phe Ala Gln Lys Gln Arg Lys Leu Asn Arg Arg Thr Ser Phe Ser	

450	455	460	465	
ttc cag aag gag aag aaa tcc ggg cag cag tga	caactggcc tccagcctca	1801		
Phe Gln Lys Glu Lys Lys Ser Gly Gln Gln *				
466	471	476		
atctgttccg tagctcagag cctgcctgcc agggccaagt	gccctagagc ccacccggtg	1861		
tcctgaagtc ctcgggggga ggccagcccc tggctcactg	gcacagggca ggtgggctct	1921		
cggggaaggt gtcgggggcc cccctaggag ggagcgctgg	ggacattgcc atgggacgga	1981		
agtctgcttg gcagtggctt tgataagcga tgcttggggg	tcagaccacc ccctagagga	2041		
gccacgtgcc gccagccac cttcaatgcc tgccaccctg	cccaggatg tacagagccg	2101		
tgccacaca tttccttgca acttgatcaa atttcttaaa	gcaaacaaca aaaatgtaca	2161		
tttctgtttt tccttttaat aaacaggtgt actctttaa	aaaaaaaa	2210		

<210> 1010  
 <211> 1233  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (122)..(733)

<400> 1010	
aggggtggtt ttaactgaag cctggatgac ataactatct attcgatgat gaagataccc	60
caccaaacc aaaaaaagag atctctcgag gatccgaatt cgcgcccgcg tcgacccgaa	120
g atg gcg gag gtg cag gtc ctg gtg ctt gat ggt cga ggc cat ctc	166
Met Ala Glu Val Gln Val Leu Val Leu Asp Gly Arg Gly His Leu	
1 5 10	
ctg ggc cgc ctg gcg gcc atc gtg gct aaa cag gta ctg ctg ggc cgg	214
Leu Gly Arg Leu Ala Ala Ile Val Ala Lys Gln Val Leu Leu Gly Arg	
16 21 26 31	
aag gtg gtg gtc gta cgc tgt gaa ggc atc aac att tct ggc aat ttc	262
Lys Val Val Val Val Arg Cys Glu Gly Ile Asn Ile Ser Gly Asn Phe	
32 37 42 47	
tac aga aac aag ttg aag tac ctg gct ttc ctc cgc aag cgg atg aac	310
Tyr Arg Asn Lys Leu Lys Tyr Leu Ala Phe Leu Arg Lys Arg Met Asn	
48 53 58 63	
acc aac cct tcc cga ggc ccc tac cac ttc cgg gcc ccc agc cgc atc	358
Thr Asn Pro Ser Arg Gly Pro Tyr His Phe Arg Ala Pro Ser Arg Ile	
64 69 74 79	

ttc tgg cgg acc gtg cga ggt atg ctg ccc cac aaa acc aag cga ggc	406
Phe Trp Arg Thr Val Arg Gly Met Leu Pro His Lys Thr Lys Arg Gly	
80 85 90 95	
cag gcc gct ctg gac cgt ctc aag gtg ttt gac ggc atc cca ccg ccc	454
Gln Ala Ala Leu Asp Arg Leu Lys Val Phe Asp Gly Ile Pro Pro Pro	
96 101 106 111	
tac gac aag aaa aag cgg atg gtg gtt cct gct gcc ctc aag gtc gtg	502
Tyr Asp Lys Lys Lys Arg Met Val Val Pro Ala Ala Leu Lys Val Val	
112 117 122 127	
cgt ctg aag cct aca aga aag ttt gcc tat ctg ggg cgc ctg gct cac	550
Arg Leu Lys Pro Thr Arg Lys Phe Ala Tyr Leu Gly Arg Leu Ala His	
128 133 138 143	
gag gtt ggc tgg aag tac cag gca gtg aca gcc acc ctg gag gag aag	598
Glu Val Gly Trp Lys Tyr Gln Ala Val Thr Ala Thr Leu Glu Glu Lys	
144 149 154 159	
agg aaa gag aaa gcc aag atc cac tac cgg aag aag aaa cag ctc atg	646
Arg Lys Glu Lys Ala Lys Ile His Tyr Arg Lys Lys Lys Gln Leu Met	
160 165 170 175	
agg cta cgg aaa cag gcc gag aag aac gtg gag aag aaa att gac aaa	694
Arg Leu Arg Lys Gln Ala Glu Lys Asn Val Glu Lys Lys Ile Asp Lys	
176 181 186 191	
tac aca gag gtc ctc aag acc cac gga ctc ctg gtc tga gcccaataaa	743
Tyr Thr Glu Val Leu Lys Thr His Gly Leu Leu Val *	
192 197 202	
gactgttaat tcctcatgcg ttgcctgccc ttctccatt gttgccctgg aatgtacggg	803
accagggggc agcagcagtc caggtgccac aggcagccct gggacatagg aagctggggag	863
caaggaaagg gtcttagtca ctgcctcccg aagttgcttg aaagcactcg gagaattgtg	923
caggtgtcat ttatctatga ccaataggaa gagcaaccag ttactatgag tgaaaggagg	983
ccagaagact gattggaggg ccctatcttg tgagtggggc atctgttgga ctttccacct	1043
ggcatatac tctgcagctg ttagaatgtg caagcacttg gggacagcat gagcttgctg	1103
ttgtacacag ggtattttcta gaagcagaaa tagactggga agatgcacaa ccaaggggtt	1163
acaggcatcg cccatgctcc tcacctgtat tttgtaatca gaaataaatt gcttttaaag	1223
aaaaaaaaa	1233

<210> |1011

<211> 828

<212> DNA

<213> Homo sapiens



<220>  
 <221> CDS  
 <222> (45)..(809)

<220>  
 <221> misc\_feature  
 <222> (1)...(828)  
 <223> n = a,t,c or g

<400> 1011

attcgagacc attagttggn gngcttgaat tcgctcgcgg ggcc atg cca ttc ctc 56  
 Met Pro Phe Leu  
 1

ggg cag gac tgg cgg tcc ccg ggg cag aac tgg gtg aag acg gcc gac 104  
 Gly Gln Asp Trp Arg Ser Pro Gly Gln Asn Trp Val Lys Thr Ala Asp  
 5 10 15 20

ggc tgg aag cgc ttc ctg gat gag aag agc ggc agt ttc gtg agc gac 152  
 Gly Trp Lys Arg Phe Leu Asp Glu Lys Ser Gly Ser Phe Val Ser Asp  
 21 26 31 36

ctc agc agt tac tgc aac aag gag gta tac aat aag gag aat ctt ttc 200  
 Leu Ser Ser Tyr Cys Asn Lys Glu Val Tyr Asn Lys Glu Asn Leu Phe  
 37 42 47 52

aac agc ctg aac tat gat gtt gca gcc aag aag aga aag aag gac atg 248  
 Asn Ser Leu Asn Tyr Asp Val Ala Ala Lys Lys Arg Lys Lys Asp Met  
 53 58 63 68

ctg aat agc aaa acc aaa act cag tat ttc cac caa gaa aaa tgg atc 296  
 Leu Asn Ser Lys Thr Lys Thr Gln Tyr Phe His Gln Glu Lys Trp Ile  
 69 74 79 84

tat gtt cac aaa gga agt act aaa gag cgc cat gga tat tgc acc ctg 344  
 Tyr Val His Lys Gly Ser Thr Lys Glu Arg His Gly Tyr Cys Thr Leu  
 85 90 95 100

ggg gaa gct ttc aac aga ctg gac ttc tca act gcc att ctg gat tcc 392  
 Gly Glu Ala Phe Asn Arg Leu Asp Phe Ser Thr Ala Ile Leu Asp Ser  
 101 106 111 116

aga aga ttt aac tac gtg gtc cgg ctg ttg gag ctg ata gca aag tca 440  
 Arg Arg Phe Asn Tyr Val Val Arg Leu Leu Glu Leu Ile Ala Lys Ser  
 117 122 127 132

cag ctc aca tcc ctg agt ggc atc gcc caa aag aac ttc atg aat att 488  
 Gln Leu Thr Ser Leu Ser Gly Ile Ala Gln Lys Asn Phe Met Asn Ile  
 133 138 143 148

ttg gaa aaa gtg gta ctg aaa gtc ctt gaa gac cag caa aac att aga 536  
 Leu Glu Lys Val Val Leu Lys Val Leu Glu Asp Gln Gln Asn Ile Arg  
 149 154 159 164

cta ata agg gaa cta ctc cag acc ctc tac aca tcc tta tgt aca ctg 584  
 Leu Ile Arg Glu Leu Leu Gln Thr Leu Tyr Thr Ser Leu Cys Thr Leu

165	170	175	180	
gtc caa aga gtc ggc aag tct gtg ctg gtc ggg aac att aac atg tgg				632
Val Gln Arg Val Gly Lys Ser Val Leu Val Gly Asn Ile Asn Met Trp				
181	186	191	196	
gtg tat cgg atg gag acg att ctc cac tgg cag cag cag ctg aac aac				680
Val Tyr Arg Met Glu Thr Ile Leu His Trp Gln Gln Gln Leu Asn Asn				
197	202	207	212	
att cag atc acc agg gta agc ggg cag gcc cag cct cct ccc ggc agt				728
Ile Gln Ile Thr Arg Val Ser Gly Gln Ala Gln Pro Pro Pro Gly Ser				
213	218	223	228	
ggg tcc ctc cac agg gat act gga cag cct cgc caa gac ttt gaa ttc				776
Gly Ser Leu His Arg Asp Thr Gly Gln Pro Arg Gln Asp Phe Glu Phe				
229	234	239	244	
act cct gtg acg gaa gag tct ggt ctt ttc tga tctgctgc cttgttctgg				827
Thr Pro Val Thr Glu Glu Ser Gly Leu Phe *				
245	250	255		
t				828

<210> 1012  
 <211> 1823  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> CDS  
 <222> (164)..(1786)

<400> 1012	
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ggcgggtcgcc aggtottagg gtcgggggta cccgagtctc gtttcctctc agtccatcca	120
cccttcatgg ggccagagcc ctctctccag aatctgagca gca atg ccg ttt gct	175
	Met Pro Phe Ala
	1
gaa gac aag acc tat aag tat atc tgc cgc aat ttc agc aat ttt tgc	223
Glu Asp Lys Thr Tyr Lys Tyr Ile Cys Arg Asn Phe Ser Asn Phe Cys	
5 10 15 20	
aat gtg gat gtt gta gag att ctg cct tac ctg ccc tgc ctc aca gca	271
Asn Val Asp Val Val Glu Ile Leu Pro Tyr Leu Pro Cys Leu Thr Ala	
21 26 31 36	
aga gac cag gat cga ctg cgg gcc acc tgc aca ctc tca ggg aac cgg	319
Arg Asp Gln Asp Arg Leu Arg Ala Thr Cys Thr Leu Ser Gly Asn Arg	
37 42 47 52	

gac acc ctc tgg cat ctc ttc aat acc ctt cag cgg cgg ccc ggc tgg	367
Asp Thr Leu Trp His Leu Phe Asn Thr Leu Gln Arg Arg Pro Gly Trp	
53 58 63 68	
gtg gag tac ttc att gcg gca ctg agg ggc tgt gag cta gtt gat ctc	415
Val Glu Tyr Phe Ile Ala Ala Leu Arg Gly Cys Glu Leu Val Asp Leu	
69 74 79 84	
gcg gac gaa gtg gcc tct gtc tac cag agc tac cag cct cgg acc tcg	463
Ala Asp Glu Val Ala Ser Val Tyr Gln Ser Tyr Gln Pro Arg Thr Ser	
85 90 95 100	
gac cgt ccc cca gac cca ctg gag cca ccg tca ctt cct gct gag agg	511
Asp Arg Pro Pro Asp Pro Leu Glu Pro Pro Ser Leu Pro Ala Glu Arg	
101 106 111 116	
cca ggg ccc ccc aca cct gct gcg gcc cac agc atc ccc tac aac agc	559
Pro Gly Pro Pro Thr Pro Ala Ala Ala His Ser Ile Pro Tyr Asn Ser	
117 122 127 132	
tgc aga gag aag gag cca agt tac ccc atg cct gtc cag gag acc cag	607
Cys Arg Glu Lys Glu Pro Ser Tyr Pro Met Pro Val Gln Glu Thr Gln	
133 138 143 148	
gcg cca gag tcc cca gga gag aat tca gag caa gcc ctg cag acg ctc	655
Ala Pro Glu Ser Pro Gly Glu Asn Ser Glu Gln Ala Leu Gln Thr Leu	
149 154 159 164	
agc ccc aga gcc atc cca agg aat cca gat ggt ggc ccc ctg gag tcc	703
Ser Pro Arg Ala Ile Pro Arg Asn Pro Asp Gly Gly Pro Leu Glu Ser	
165 170 175 180	
tcc tct gac ctg gca gcc ctc agc cct ctg acc tcc agc ggg cat cag	751
Ser Ser Asp Leu Ala Ala Leu Ser Pro Leu Thr Ser Ser Gly His Gln	
181 186 191 196	
gag cag gac aca gaa ctg ggc agt acc cac aca gca ggt gcg acc tcc	799
Glu Gln Asp Thr Glu Leu Gly Ser Thr His Thr Ala Gly Ala Thr Ser	
197 202 207 212	
agc ctc aca cca tcc cgt ggg cct gtg tct cca tct gtc tcc ttc cag	847
Ser Leu Thr Pro Ser Arg Gly Pro Val Ser Pro Ser Val Ser Phe Gln	
213 218 223 228	
ccc ctg gcc cgt tcc acc ccc agg gca agc cgc ttg cct gga ccc aca	895
Pro Leu Ala Arg Ser Thr Pro Arg Ala Ser Arg Leu Pro Gly Pro Thr	
229 234 239 244	
ggg tca gtt gta tct act ggc acc tcc ttc tcc tcc tca tcc cct ggc	943
Gly Ser Val Val Ser Thr Gly Thr Ser Phe Ser Ser Ser Ser Pro Gly	
245 250 255 260	
ttg gcc tct gca ggg gct gca gag ggt aaa cag ggt gca gag agt gac	991
Leu Ala Ser Ala Gly Ala Ala Glu Gly Lys Gln Gly Ala Glu Ser Asp	
261 266 271 276	
cag gcc gag cct atc atc tgc tcc agt ggg gca gag gca cct gcc aac	1039

Gln	Ala	Glu	Pro	Ile	Ile	Cys	Ser	Ser	Gly	Ala	Glu	Ala	Pro	Ala	Asn		
277					282					287					292		
tct	ctg	ccc	tcc	aaa	gtg	cct	acc	acc	ttg	atg	cct	gtg	aac	aca	gtg	1087	
Ser	Leu	Pro	Ser	Lys	Val	Pro	Thr	Thr	Leu	Met	Pro	Val	Asn	Thr	Val		
293					298					303					308		
gcc	ctg	aaa	gtg	cct	gcc	aac	cca	gca	tct	gtc	agc	aca	gtg	ccc	tcc	1135	
Ala	Leu	Lys	Val	Pro	Ala	Asn	Pro	Ala	Ser	Val	Ser	Thr	Val	Pro	Ser		
309					314					319					324		
aag	ttg	cca	act	agc	tca	aag	ccc	cct	ggg	gca	gtg	cct	tct	aat	gcg	1183	
Lys	Leu	Pro	Thr	Ser	Ser	Lys	Pro	Pro	Gly	Ala	Val	Pro	Ser	Asn	Ala		
325					330					335					340		
ctc	acc	aat	cca	gca	cca	tcc	aaa	ttg	ccc	atc	aac	tca	acc	cgt	gct	1231	
Leu	Thr	Asn	Pro	Ala	Pro	Ser	Lys	Leu	Pro	Ile	Asn	Ser	Thr	Arg	Ala		
341					346					351					356		
ggc	atg	gtg	cca	tcc	aaa	gtg	cct	act	agc	atg	gtg	ctc	acc	aag	gtg	1279	
Gly	Met	Val	Pro	Ser	Lys	Val	Pro	Thr	Ser	Met	Val	Leu	Thr	Lys	Val		
357					362					367					372		
tct	gcc	agc	aca	gtc	ccc	act	gac	ggg	agc	agc	aga	aat	gag	gag	acc	1327	
Ser	Ala	Ser	Thr	Val	Pro	Thr	Asp	Gly	Ser	Ser	Arg	Asn	Glu	Glu	Thr		
373					378					383					388		
cca	gca	gct	cca	aca	ccc	gcc	ggc	gcc	act	gga	ggc	agc	tca	gcc	tgg	1375	
Pro	Ala	Ala	Pro	Thr	Pro	Ala	Gly	Ala	Thr	Gly	Gly	Ser	Ser	Ala	Trp		
389					394					399					404		
cta	gac	agc	agc	tct	gag	aat	agg	ggc	ctt	ggg	tcg	gag	ctg	agt	aag	1423	
Leu	Asp	Ser	Ser	Ser	Glu	Asn	Arg	Gly	Leu	Gly	Ser	Glu	Leu	Ser	Lys		
405					410					415					420		
cct	ggc	gtg	ctg	gca	tcc	cag	gta	gac	agc	ccg	ttc	tcg	ggc	tgc	ttc	1471	
Pro	Gly	Val	Leu	Ala	Ser	Gln	Val	Asp	Ser	Pro	Phe	Ser	Gly	Cys	Phe		
421					426					431					436		
gag	gat	ctt	gcc	atc	agt	gcc	agc	acc	tcc	ttg	ggc	atg	ggg	ccc	tgc	1519	
Glu	Asp	Leu	Ala	Ile	Ser	Ala	Ser	Thr	Ser	Leu	Gly	Met	Gly	Pro	Cys		
437					442					447					452		
cat	ggc	cca	gag	gag	aat	gag	tat	aag	tcc	gag	ggc	acc	ttt	ggg	atc	1567	
His	Gly	Pro	Glu	Glu	Asn	Glu	Tyr	Lys	Ser	Glu	Gly	Thr	Phe	Gly	Ile		
453					458					463					468		
cac	gtg	gct	gag	aac	ccc	agc	atc	cag	ctc	ctg	gag	ggc	aac	cct	ggg	1615	
His	Val	Ala	Glu	Asn	Pro	Ser	Ile	Gln	Leu	Leu	Glu	Gly	Asn	Pro	Gly		
469					474					479					484		
cca	cct	gcg	gac	ccg	gat	ggc	ggc	ccc	agg	cca	caa	gcc	gac	cgg	aag	1663	
Pro	Pro	Ala	Asp	Pro	Asp	Gly	Gly	Pro	Arg	Pro	Gln	Ala	Asp	Arg	Lys		
485					490					495					500		
ttc	cag	gag	agg	gag	gtg	cca	tgc	cac	agg	ccc	tca	cct	ggg	gct	ctg	1711	
Phe	Gln	Glu	Arg	Glu	Val	Pro	Cys	His	Arg	Pro	Ser	Pro	Gly	Ala	Leu		

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tgg ctc cag gtg gct gtg aca ggg gtg ctg gta gtc aca ctc ctg gtg				1759
Trp Leu Gln Val Ala Val Thr Gly Val Leu Val Val Thr Leu Leu Val				
517	522	527	532	
gtg ctg tac cgg cgg cgt ctg cac tag tgaag ccctgggctc ttccccccaa				1811
Val Leu Tyr Arg Arg Arg Leu His *				
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taaaaatgta gattagataa actgcatcta ttacacccaa cagcaatgag cttttcatga				180
gttgaaaaaa agaaaaaacc c atg tcg gcc cca gcc ctg ggg cta cct gac				231
Met Ser Ala Pro Ala Leu Gly Leu Pro Asp				
1 5				
ctg aca aaa cct ttt aca ctc tat gtg tca gaa aga gaa aaa gtg gca				279
Leu Thr Lys Pro Phe Thr Leu Tyr Val Ser Glu Arg Glu Lys Val Ala				
11 16 21 26				
gtt gga gtt tta acc cag act gta ggg ccc tgg cca agg cca gtg gcc				327
Val Gly Val Leu Thr Gln Thr Val Gly Pro Trp Pro Arg Pro Val Ala				
27 32 37 42				
tat ctc tca aaa caa cta gat gag gtt tcc aaa cgc tgg ccc cca tgt				375
Tyr Leu Ser Lys Gln Leu Asp Glu Val Ser Lys Arg Trp Pro Pro Cys				
43 48 53 58				
cca aag tcc ctg gta gca ata gcc ctg tta gca caa gaa gca gat aag				423
Pro Lys Ser Leu Val Ala Ile Ala Leu Leu Ala Gln Glu Ala Asp Lys				
59 64 69 74				
cta act ctt aga caa aac cta aac ata aag tcc ccc tgt gct gtg gtg				471
Leu Thr Leu Arg Gln Asn Leu Asn Ile Lys Ser Pro Cys Ala Val Val				
75 80 85 90				
att tta ata aat acc aaa gga cac cat tag c taatgaatgc tagactagct				522
Ile Leu Ile Asn Thr Lys Gly His His *				

91

96

agataacaaa gcttgctctg tgaacatccc cgcataacca ttgaagtttg caacacctaa 582  
 accccgccac cttcctcccg gtgtcagaga gccaggttaa acataactgt gtagaggtat 642  
 tggactcagt ttattctagt gggcctaacc accgagacca tccttaaaca tcagtagact 702  
 gggagctgta catggatggg agcagcttca ccaacccttg caaagtgact ctgaagaaga 762  
 cgacaagccc tgctccagtc acaccggaa gctgagtggg tcacgcacag ctggagcatg 822  
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&lt;211&gt; 2550

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

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 Met Gln Val  
 1  
 tcc agc ctc aat gag gtg aag att tac agc ctc agc tgc ggc aag tcc 162  
 Ser Ser Leu Asn Glu Val Lys Ile Tyr Ser Leu Ser Cys Gly Lys Ser  
 4 9 14 19  
 ctt cct gag tgg ctt tct gat agg aag aag aga gcg cta cag aag aaa 210  
 Leu Pro Glu Trp Leu Ser Asp Arg Lys Lys Arg Ala Leu Gln Lys Lys  
 20 25 30 35  
 gat gta gat gtc cgt agg aga att gaa ctt att cag gac ttt gaa atg 258  
 Asp Val Asp Val Arg Arg Arg Ile Glu Leu Ile Gln Asp Phe Glu Met  
 36 41 46 51  
 cct act gtg tgt acc act att aag gtg tca aaa gat gga cag tac att 306  
 Pro Thr Val Cys Thr Thr Ile Lys Val Ser Lys Asp Gly Gln Tyr Ile  
 52 57 62 67  
 tta gca act gga aca tat aaa cct cgg gtt cga tgt tat gac acc tat 354  
 Leu Ala Thr Gly Thr Tyr Lys Pro Arg Val Arg Cys Tyr Asp Thr Tyr  
 68 73 78 83  
 caa tta tcc ttg aag ttt gaa agg tgt tta gat tca gaa gtt gtc acc 402  
 Gln Leu Ser Leu Lys Phe Glu Arg Cys Leu Asp Ser Glu Val Val Thr  
 84 89 94 99

ttt gaa att ttg tct gat gac tac tca aag att gtc ttc tta cat aat	450
Phe Glu Ile Leu Ser Asp Asp Tyr Ser Lys Ile Val Phe Leu His Asn	
100 105 110 115	
gat aga tac att gaa ttt cat tcg caa tca ggt ttt tac tac aaa acc	498
Asp Arg Tyr Ile Glu Phe His Ser Gln Ser Gly Phe Tyr Tyr Lys Thr	
116 121 126 131	
aga ata cca aag ttt ggg aga gat ttc tct tac cac tat cca tcc tgt	546
Arg Ile Pro Lys Phe Gly Arg Asp Phe Ser Tyr His Tyr Pro Ser Cys	
132 137 142 147	
gac ttg tac ttt gtt ggt gca agt tct gaa gtt tat agg tta aac tta	594
Asp Leu Tyr Phe Val Gly Ala Ser Ser Glu Val Tyr Arg Leu Asn Leu	
148 153 158 163	
gaa caa gga cga tac ctg aat cct cta caa act gat gct gcg gag aat	642
Glu Gln Gly Arg Tyr Leu Asn Pro Leu Gln Thr Asp Ala Ala Glu Asn	
164 169 174 179	
aat gtt tgt gac ata aat tca gtg cat ggc ttg ttt gcc aca gga acc	690
Asn Val Cys Asp Ile Asn Ser Val His Gly Leu Phe Ala Thr Gly Thr	
180 185 190 195	
ata gag ggt aga gtg gag tgc tgg gac cca aga act cga aac aga gtt	738
Ile Glu Gly Arg Val Glu Cys Trp Asp Pro Arg Thr Arg Asn Arg Val	
196 201 206 211	
ggc ctg tta gac tgc gcc tta aac agt gtc aca gca gat tca gag ata	786
Gly Leu Leu Asp Cys Ala Leu Asn Ser Val Thr Ala Asp Ser Glu Ile	
212 217 222 227	
aac agt tta cca aca atc tct gct ttg aaa ttt aat ggt gcc ttg acc	834
Asn Ser Leu Pro Thr Ile Ser Ala Leu Lys Phe Asn Gly Ala Leu Thr	
228 233 238 243	
atg gca gtt gga aca acc aca ggg cag gtt tta tta tat gac ctt cga	882
Met Ala Val Gly Thr Thr Thr Gly Gln Val Leu Leu Tyr Asp Leu Arg	
244 249 254 259	
tct gat aag cca ttg cta gtt aaa gat cac cag tat ggg ctg ccc att	930
Ser Asp Lys Pro Leu Leu Val Lys Asp His Gln Tyr Gly Leu Pro Ile	
260 265 270 275	
aag tcc gtt cat ttc cag gat tca tta gat ctg att ttg tct gct gac	978
Lys Ser Val His Phe Gln Asp Ser Leu Asp Leu Ile Leu Ser Ala Asp	
276 281 286 291	
tct cga att gtc aag atg tgg aat aag aac tcc gga aaa ata ttt act	1026
Ser Arg Ile Val Lys Met Trp Asn Lys Asn Ser Gly Lys Ile Phe Thr	
292 297 302 307	
tcc ttg gag cca gag cat gac ctt aat gat gtt tgt ctc tac ccc aac	1074
Ser Leu Glu Pro Glu His Asp Leu Asn Asp Val Cys Leu Tyr Pro Asn	
308 313 318 323	
tca ggc atg ctt ctg acg gcc aat gaa acc ccc aag atg ggc atc tat	1122

Ser Gly Met Leu Leu Thr Ala Asn Glu Thr Pro Lys Met Gly Ile Tyr	
324 329 334 339	
tac att cca gtt ttg ggt cct gct cct cgg tgg tgt tcc ttc tta gac	1170
Tyr Ile Pro Val Leu Gly Pro Ala Pro Arg Trp Cys Ser Phe Leu Asp	
340 345 350 355	
aac ttg acc gaa gaa tta gaa gag aat cca gaa agc aca gtc tat gat	1218
Asn Leu Thr Glu Glu Leu Glu Glu Asn Pro Glu Ser Thr Val Tyr Asp	
356 361 366 371	
gat tat aaa ttt gtc acc aag aaa gac ctt gaa aat tta ggg ctc acc	1266
Asp Tyr Lys Phe Val Thr Lys Lys Asp Leu Glu Asn Leu Gly Leu Thr	
372 377 382 387	
cac ctc att gga tct cct ttc ctc cgg gca tat atg cat ggg ttt ttc	1314
His Leu Ile Gly Ser Pro Phe Leu Arg Ala Tyr Met His Gly Phe Phe	
388 393 398 403	
atg gat ata aga ctc tat cac aag gtg aaa ctg atg gta aat cca ttt	1362
Met Asp Ile Arg Leu Tyr His Lys Val Lys Leu Met Val Asn Pro Phe	
404 409 414 419	
gct tat gaa gaa tat agg aaa gat aaa ata cga cag aaa ata gaa gaa	1410
Ala Tyr Glu Glu Tyr Arg Lys Asp Lys Ile Arg Gln Lys Ile Glu Glu	
420 425 430 435	
aca cgt gca cag aga gtc cag tta aag aaa ttg cca aaa gtt aac aaa	1458
Thr Arg Ala Gln Arg Val Gln Leu Lys Lys Leu Pro Lys Val Asn Lys	
436 441 446 451	
gag ctg gca ctt aaa tta att gag gaa gaa gag gag aag cag aaa tct	1506
Glu Leu Ala Leu Lys Leu Ile Glu Glu Glu Glu Glu Lys Gln Lys Ser	
452 457 462 467	
aca tgg aaa aag aaa gtt aag agt ctt cct aat att ctc acc gat gat	1554
Thr Trp Lys Lys Lys Val Lys Ser Leu Pro Asn Ile Leu Thr Asp Asp	
468 473 478 483	
cga ttt aaa gtt atg ttt gag aac cct gac ttc caa gta gat gaa gag	1602
Arg Phe Lys Val Met Phe Glu Asn Pro Asp Phe Gln Val Asp Glu Glu	
484 489 494 499	
agt gaa gaa ttt agg ctt ctg aat cca ctt gtt tca aaa att agt gaa	1650
Ser Glu Glu Phe Arg Leu Leu Asn Pro Leu Val Ser Lys Ile Ser Glu	
500 505 510 515	
aaa agg aag aag aaa cta aga ctc tta gag caa caa gaa ctt cgt gaa	1698
Lys Arg Lys Lys Lys Leu Arg Leu Leu Glu Gln Gln Glu Leu Arg Glu	
516 521 526 531	
aaa gaa gag gag gaa gag ccg gaa gga aaa cca agt gat gca gaa agt	1746
Lys Glu Glu Glu Glu Glu Pro Glu Gly Lys Pro Ser Asp Ala Glu Ser	
532 537 542 547	
tcg gag agt tca gat gat gaa aaa gcc tgg gtt gaa gag gtc agg aag	1794
Ser Glu Ser Ser Asp Asp Glu Lys Ala Trp Val Glu Glu Val Arg Lys	



548	553	558	563	
caa cgc aga ctc ctc cag cag gag gaa aaa gtg aag cgg cag gaa cga				1842
Gln Arg Arg Leu Leu Gln Gln Glu Glu Lys Val Lys Arg Gln Glu Arg				
564	569	574	579	
ctc aag gag gac cag cag aca gtc cta aag ccc cag ttt tat gag atc				1890
Leu Lys Glu Asp Gln Gln Thr Val Leu Lys Pro Gln Phe Tyr Glu Ile				
580	585	590	595	
aaa gca gga gaa gaa ttt aga agc ttc aaa gat tct gcc aca aag cag				1938
Lys Ala Gly Glu Glu Phe Arg Ser Phe Lys Asp Ser Ala Thr Lys Gln				
596	601	606	611	
aaa ctg atg aac aaa acc ctt gaa gat cgt ttg aaa att gaa gca aaa				1986
Lys Leu Met Asn Lys Thr Leu Glu Asp Arg Leu Lys Ile Glu Ala Lys				
612	617	622	627	
aat ggg aca ttg agt gta tcc gac acc acc gtt ggc agc aaa caa ttg				2034
Asn Gly Thr Leu Ser Val Ser Asp Thr Thr Val Gly Ser Lys Gln Leu				
628	633	638	643	
aca ttc acg tta aag agg tct gaa cag cag aag aag caa cag gag gct				2082
Thr Phe Thr Leu Lys Arg Ser Glu Gln Gln Lys Lys Gln Gln Glu Ala				
644	649	654	659	
gag aaa ctg cat cga caa gaa agg aaa aga ctc cgt cgt tcg gcc gga				2130
Glu Lys Leu His Arg Gln Glu Arg Lys Arg Leu Arg Arg Ser Ala Gly				
660	665	670	675	
cac ctg aag tca aga cac aaa aga gga cgg tcg ttt cat tga tttggga				2179
His Leu Lys Ser Arg His Lys Arg Gly Arg Ser Phe His *				
676	681	686		
agtgggtccta cctgtgatta gggaggggta cgtctcccc aaactgatca tcgttaggg				2239
gttaaacaca gacgaggaaa cacacgtttt taaagttcat gtacgttctt gtacacagag				2299
gtaaagattt gaaaacctgt gccttgtggg ttggactttg aagctggccc cgccgacggc				2359
caccgcacag cccaggggt gtgcttgca gtcgttgctc cctggaaaca ttgtcctttc				2419
cccacggctt taatcatgaa aaccaggctg ggggtttttt aatattgtga aatgtacacc				2479
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Met Gln Val  
1

tcc agc ctc aat gag gtg aag att tac agc ctc agc tgc ggc aag tcc 162  
Ser Ser Leu Asn Glu Val Lys Ile Tyr Ser Leu Ser Cys Gly Lys Ser  
4 9 14 19

ctt cct gag tgg ctt tct gat agg aag aag aga gcg cta cag aag aaa 210  
Leu Pro Glu Trp Leu Ser Asp Arg Lys Lys Arg Ala Leu Gln Lys Lys  
20 25 30 35

gat gta gat gtc cgt agg aga att gaa ctt att cag gac ttt gaa atg 258  
Asp Val Asp Val Arg Arg Arg Ile Glu Leu Ile Gln Asp Phe Glu Met  
36 41 46 51

cct act gtg tgt acc act att aag gtg tca aaa gat gga cag tac att 306  
Pro Thr Val Cys Thr Thr Ile Lys Val Ser Lys Asp Gly Gln Tyr Ile  
52 57 62 67

tta gca act gtt gtc acc ttt gaa att ttg tct gat gac tac tca aag 354  
Leu Ala Thr Val Val Thr Phe Glu Ile Leu Ser Asp Asp Tyr Ser Lys  
68 73 78 83

att gtc ttc tta cat aat gat aga tac att gaa ttt cat tcg caa tca 402  
Ile Val Phe Leu His Asn Asp Arg Tyr Ile Glu Phe His Ser Gln Ser  
84 89 94 99

ggg ttt tac tac aaa acc aga ata cca aag ttt ggg aga gat ttc tct 450  
Gly Phe Tyr Tyr Lys Thr Arg Ile Pro Lys Phe Gly Arg Asp Phe Ser  
100 105 110 115

tac cac tat cca tcc tgt gac ttg tac ttt gtt ggt gca agt tct gaa 498  
Tyr His Tyr Pro Ser Cys Asp Leu Tyr Phe Val Gly Ala Ser Ser Glu  
116 121 126 131

gtt tat agg tta aac tta gaa caa gga cga tac ctg aat cct cta caa 546  
Val Tyr Arg Leu Asn Leu Glu Gln Gly Arg Tyr Leu Asn Pro Leu Gln  
132 137 142 147

act gat gct gcg gag aat aat gtt tgt gac ata aat tca gtg cat ggc 594  
Thr Asp Ala Ala Glu Asn Asn Val Cys Asp Ile Asn Ser Val His Gly  
148 153 158 163

ttg ttt gcc aca gga acc ata gag ggt aga gtg gag tgc tgg gac cca 642  
Leu Phe Ala Thr Gly Thr Ile Glu Gly Arg Val Glu Cys Trp Asp Pro  
164 169 174 179

aga act cga aac aga gtt ggc ctg tta gac tgc gcc tta aac agt gtc 690  
Arg Thr Arg Asn Arg Val Gly Leu Leu Asp Cys Ala Leu Asn Ser Val  
180 185 190 195

aca gca gat tca gag ata aac agt tta cca aca atc tct gct ttg aaa	738
Thr Ala Asp Ser Glu Ile Asn Ser Leu Pro Thr Ile Ser Ala Leu Lys	
196 201 206 211	
ttt aat ggt gcc ttg acc atg gca gtt gga aca acc aca ggg cag gtt	786
Phe Asn Gly Ala Leu Thr Met Ala Val Gly Thr Thr Thr Gly Gln Val	
212 217 222 227	
tta tta tat gac ctt cga tct gat aag cca ttg cta gtt aaa gat cac	834
Leu Leu Tyr Asp Leu Arg Ser Asp Lys Pro Leu Leu Val Lys Asp His	
228 233 238 243	
cag tat ggg ctg ccc att aag tcc gtt cat ttc cag gat tca tta gat	882
Gln Tyr Gly Leu Pro Ile Lys Ser Val His Phe Gln Asp Ser Leu Asp	
244 249 254 259	
ctg att ttg tct gct gac tct cga att gtc aag atg tgg aat aag aac	930
Leu Ile Leu Ser Ala Asp Ser Arg Ile Val Lys Met Trp Asn Lys Asn	
260 265 270 275	
tcc gga aaa ata ttt act tcc ttg gag cca gag cat gac ctt aat gat	978
Ser Gly Lys Ile Phe Thr Ser Leu Glu Pro Glu His Asp Leu Asn Asp	
276 281 286 291	
gtt tgt ctc tac ccc aac tca ggc atg ctt ctg acg gcc aat gaa acc	1026
Val Cys Leu Tyr Pro Asn Ser Gly Met Leu Leu Thr Ala Asn Glu Thr	
292 297 302 307	
ccc aag atg ggc atc tat tac att cca gtt ttg ggt cct gct cct cgg	1074
Pro Lys Met Gly Ile Tyr Tyr Ile Pro Val Leu Gly Pro Ala Pro Arg	
308 313 318 323	
tgg tgt tcc ttc tta gac aac ttg acc gaa gaa tta gaa gag aat cca	1122
Trp Cys Ser Phe Leu Asp Asn Leu Thr Glu Glu Leu Glu Glu Asn Pro	
324 329 334 339	
gaa agc aca gtc tat gat gat tat aaa ttt gtc acc aag aaa gac ctt	1170
Glu Ser Thr Val Tyr Asp Asp Tyr Lys Phe Val Thr Lys Lys Asp Leu	
340 345 350 355	
gaa aat tta ggg ctc acc cac ctc att gga tct cct ttc ctc cgg gca	1218
Glu Asn Leu Gly Leu Thr His Leu Ile Gly Ser Pro Phe Leu Arg Ala	
356 361 366 371	
tat atg cat ggg ttt ttc atg gat ata aga ctc tat cac aag gtg aaa	1266
Tyr Met His Gly Phe Phe Met Asp Ile Arg Leu Tyr His Lys Val Lys	
372 377 382 387	
ctg atg gta aat cca ttt gct tat gaa gaa tat agg aaa gat aaa ata	1314
Leu Met Val Asn Pro Phe Ala Tyr Glu Glu Tyr Arg Lys Asp Lys Ile	
388 393 398 403	
cga cag aaa ata gaa gaa aca cgt gca cag aga gtc cag tta aag aaa	1362
Arg Gln Lys Ile Glu Glu Thr Arg Ala Gln Arg Val Gln Leu Lys Lys	
404 409 414 419	

ttg cca aaa gtt aac aaa gag ctg gca ctt aaa tta att gag gaa gaa	1410
Leu Pro Lys Val Asn Lys Glu Leu Ala Leu Lys Leu Ile Glu Glu Glu	
420 425 430 435	
gag gag aag cag aaa tct aca tgg aaa aag aaa gtt aag agt ctt cct	1458
Glu Glu Lys Gln Lys Ser Thr Trp Lys Lys Lys Val Lys Ser Leu Pro	
436 441 446 451	
aat att ctc acc gat gat cga ttt aaa gtt atg ttt gag aac cct gac	1506
Asn Ile Leu Thr Asp Asp Arg Phe Lys Val Met Phe Glu Asn Pro Asp	
452 457 462 467	
ttc caa gta gat gaa gag agt gaa gaa ttt agg ctt ctg aat cca ctt	1554
Phe Gln Val Asp Glu Glu Ser Glu Glu Phe Arg Leu Leu Asn Pro Leu	
468 473 478 483	
gtt tca aaa att agt gaa aaa agg aag aag aaa cta aga ctc tta gag	1602
Val Ser Lys Ile Ser Glu Lys Arg Lys Lys Lys Leu Arg Leu Leu Glu	
484 489 494 499	
caa caa gaa ctt cgt gaa aaa gaa gag gag gaa gag ccg gaa gga aaa	1650
Gln Gln Glu Leu Arg Glu Lys Glu Glu Glu Glu Glu Pro Glu Gly Lys	
500 505 510 515	
cca agt gat gca gaa agt tcg gag agt tca gat gat gaa aaa gcc tgg	1698
Pro Ser Asp Ala Glu Ser Ser Glu Ser Ser Asp Asp Glu Lys Ala Trp	
516 521 526 531	
gtt gaa gag gtc agg aag caa cgc aga ctc ctc cag cag gag gaa aaa	1746
Val Glu Glu Val Arg Lys Gln Arg Arg Leu Leu Gln Gln Glu Glu Lys	
532 537 542 547	
gtg aag cgg cag gaa cga ctc aag gag gac cag cag aca gtc cta aag	1794
Val Lys Arg Gln Glu Arg Leu Lys Glu Asp Gln Gln Thr Val Leu Lys	
548 553 558 563	
ccc cag ttt tat gag atc aaa gca gga gaa gaa ttt aga agc ttc aaa	1842
Pro Gln Phe Tyr Glu Ile Lys Ala Gly Glu Glu Phe Arg Ser Phe Lys	
564 569 574 579	
gat tct gcc aca aag cag aaa ctg atg aac aaa acc ctt gaa gat cgt	1890
Asp Ser Ala Thr Lys Gln Lys Leu Met Asn Lys Thr Leu Glu Asp Arg	
580 585 590 595	
ttg aaa att gaa gca aaa aat ggg aca ttg agt gta tcc gac acc acc	1938
Leu Lys Ile Glu Ala Lys Asn Gly Thr Leu Ser Val Ser Asp Thr Thr	
596 601 606 611	
gtt ggc agc aaa caa ttg aca ttc acg tta aag agg tct gaa cag cag	1986
Val Gly Ser Lys Gln Leu Thr Phe Thr Leu Lys Arg Ser Glu Gln Gln	
612 617 622 627	
aag aag caa cag gag gct gag aaa ctg cat cga caa gaa agg aaa aga	2034
Lys Lys Gln Gln Glu Ala Glu Lys Leu His Arg Gln Glu Arg Lys Arg	
628 633 638 643	
ctc cgt cgt tcg gcc gga cac ctg aag tca aga cac aaa aga gga cgg	2082

Leu Arg Arg Ser Ala Gly His Leu Lys Ser Arg His Lys Arg Gly Arg  
 644 649 654 659

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 Ser Phe His \*  
 660

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 ttttaattatt gtgaaatgta caccatgaaa tgaaagggtt atcctgtgcc agaaaccaag 2437  
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 tccagaaata ccaaaaaaaaa aaaa 2521

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 <212> DNA  
 <213> Homo sapiens

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 <222> (247)..(1371)

<400> 1016

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 cctcgaatga caccaccgc cctcagggtc tgccaatccc cgtgcccacc ggggtgggcgc 120  
 ggccgggaag ctctgcccc tccctgctgg tcggcgtcac gcgtgacgtc ccgcgtgatg 180  
 gctgggaggg cccggcggcg acagcggagg cagagaggaa ggcggttctg agagcttcag 240  
 agagcg atg gaa agc aaa atg ggt gaa ttg cct tta gac atc aac atc 288  
 Met Glu Ser Lys Met Gly Glu Leu Pro Leu Asp Ile Asn Ile  
 1 5 10  
 cag gaa cct cgc tgg gac caa agt act ttc ctg ggc aga gcc cgg cac 336  
 Gln Glu Pro Arg Trp Asp Gln Ser Thr Phe Leu Gly Arg Ala Arg His  
 15 20 25 30  
 ttt ttc act gtt act gat cct cga aat ctg ctg ctg tcc ggg gca cag 384  
 Phe Phe Thr Val Thr Asp Pro Arg Asn Leu Leu Leu Ser Gly Ala Gln  
 31 36 41 46  
 ctg gaa gct tct cgg aac atc gtg cag aac tac agg gcc ggc gtg gtg 432  
 Leu Glu Ala Ser Arg Asn Ile Val Gln Asn Tyr Arg Ala Gly Val Val  
 47 52 57 62

acc cca ggg atc acc gag gac cag ctg tgg agg gcc aag tat gtg tat	480
Thr Pro Gly Ile Thr Glu Asp Gln Leu Trp Arg Ala Lys Tyr Val Tyr	
63 68 73 78	
gac tcc gcc ttc cat ccg gac aca ggg gag aag gtg gtc ctg att ggc	528
Asp Ser Ala Phe His Pro Asp Thr Gly Glu Lys Val Val Leu Ile Gly	
79 84 89 94	
cgc atg tca gcc cag gtg ccc atg aac atg acc atc act ggc tgc atg	576
Arg Met Ser Ala Gln Val Pro Met Asn Met Thr Ile Thr Gly Cys Met	
95 100 105 110	
ctc aca ttc tac agg aag acc cca acc gtg gtg ttc tgg cag tgg gtg	624
Leu Thr Phe Tyr Arg Lys Thr Pro Thr Val Val Phe Trp Gln Trp Val	
111 116 121 126	
aat cag tcc ttc aat gcc att gtt aac tac tcc aac cgc agt ggt gac	672
Asn Gln Ser Phe Asn Ala Ile Val Asn Tyr Ser Asn Arg Ser Gly Asp	
127 132 137 142	
act ccc atc act gtg agg cag ctg ggg aca gcc tat gtg agt gcc acc	720
Thr Pro Ile Thr Val Arg Gln Leu Gly Thr Ala Tyr Val Ser Ala Thr	
143 148 153 158	
act gga gct gtg gcc acg gcc ctg gga ctc aaa tcc ctc acc aag cac	768
Thr Gly Ala Val Ala Thr Ala Leu Gly Leu Lys Ser Leu Thr Lys His	
159 164 169 174	
ctg ccc ccc ttg gtc ggc aga ttt gtg ccc ttt gca gca gtg gca gct	816
Leu Pro Pro Leu Val Gly Arg Phe Val Pro Phe Ala Ala Val Ala Ala	
175 180 185 190	
gcc aac tgc atc aac atc ccc ctg atg agg cag aga gag ctg cag gtg	864
Ala Asn Cys Ile Asn Ile Pro Leu Met Arg Gln Arg Glu Leu Gln Val	
191 196 201 206	
ggc atc ccg gtg gct gat gag gca ggt cag agg ctt ggc tac tcg gtg	912
Gly Ile Pro Val Ala Asp Glu Ala Gly Gln Arg Leu Gly Tyr Ser Val	
207 212 217 222	
act gca gcc aag cag gga atc ttc cag gtg gtg att tca aga atc tgc	960
Thr Ala Ala Lys Gln Gly Ile Phe Gln Val Val Ile Ser Arg Ile Cys	
223 228 233 238	
atg gcg att cct gcc atg gcc atc cca cca ctg atc atg gac act ctg	1008
Met Ala Ile Pro Ala Met Ala Ile Pro Pro Leu Ile Met Asp Thr Leu	
239 244 249 254	
gag aag aaa gac ttc ctg aag gta ggc gac tgt acc tct ctt gtc ctg	1056
Glu Lys Lys Asp Phe Leu Lys Val Gly Asp Cys Thr Ser Leu Val Leu	
255 260 265 270	
gaa tgg gcg atg gct ggg aga agt gac cag gcc cca act ctc tct cca	1104
Glu Trp Ala Met Ala Gly Arg Ser Asp Gln Ala Pro Thr Leu Ser Pro	
271 276 281 286	

gcc tcg cct gat tct cta aga ctt gcc agc cct tct cct gac ccc tgc	1152
Ala Ser Pro Asp Ser Leu Arg Leu Ala Ser Pro Ser Pro Asp Pro Cys	
287 292 297 302	
acc gcc tcc tcc acc ttc gtt cat tca gca aga atg aac tgg gct ggg	1200
Thr Ala Ser Ser Thr Phe Val His Ser Ala Arg Met Asn Trp Ala Gly	
303 308 313 318	
gtg aag gaa ctc tgc agg ggc agg agg aga gga caa agg aag gaa acc	1248
Val Lys Glu Leu Cys Arg Gly Arg Arg Arg Gly Gln Arg Lys Glu Thr	
319 324 329 334	
aac ttc atc agt gtt act cca gtg gct tct gac aca cag aag ggg act	1296
Asn Phe Ile Ser Val Thr Pro Val Ala Ser Asp Thr Gln Lys Gly Thr	
335 340 345 350	
gtc ata gtc atg ctt gat ctc atg ctc att ctt tta ccc cct agt gcc	1344
Val Ile Val Met Leu Asp Leu Met Leu Ile Leu Leu Pro Pro Ser Ala	
351 356 361 366	
tcc ata ctg aga ggt aca cac ggg tga acacg cacacacaga catgaacagg	1396
Ser Ile Leu Arg Gly Thr His Gly *	
367 372	
acacgaaagc aaagcacagg aacaagctct ggctcattca cagaatcatt tattcacaaa	1456
tgtattgagt gccatgcacc aggcattgtt tagggctgag gagatggcac tgaacacaat	1516
ggttatggcc cctgtcctca tgaagtttat agtctgatgc agaaaccaat aaacaaggag	1576
gcacccaata aatacattct tagaaagtgt aatatgtgct ttgtaggaaa gcaatggggg	1636
tagtgtaatt gagattcatg ggggagagct gtttagatag gatgatcaga gaaggggtgt	1696
attgcggccg ctctagagga tccaagctta cgt	1729

<210> 1017  
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 <212> DNA  
 <213> Homo sapiens

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 <222> (194) .. (1402)

<220>  
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 <222> (1) ... (1970)  
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cttgagcggg gttcagagcg tggccagttc tcgtctatct ggctgccttt agggagcggg	120

gcctagcgtt ggccaatagt tggctgtcga aagtgccggc ccccgcgccg gcgcctgcag 180

cagtcgggtg gga atg ctc aag atg gcg tgc ttg ttg gag acc cca atc 229  
Met Leu Lys Met Ala Cys Leu Leu Glu Thr Pro Ile  
1 5 10

cgc atg agc gtc ctt tcg gaa gta aca gct agc agt cgc cac tat gtt 277  
Arg Met Ser Val Leu Ser Glu Val Thr Ala Ser Ser Arg His Tyr Val  
13 18 23 28

gac agg cta ttt gac cct gat ccc cag aaa gtt cta caa ggt gtc ata 325  
Asp Arg Leu Phe Asp Pro Asp Pro Gln Lys Val Leu Gln Gly Val Ile  
29 34 39 44

gac atg aaa aat gct gta att gga aac aac aag cag aaa gcc aat ctc 373  
Asp Met Lys Asn Ala Val Ile Gly Asn Asn Lys Gln Lys Ala Asn Leu  
45 50 55 60

att gtt tta gga gct gtt cca aga ttg ttg tac ttg ctt cag caa gaa 421  
Ile Val Leu Gly Ala Val Pro Arg Leu Leu Tyr Leu Leu Gln Gln Glu  
61 66 71 76

acc tca agc aca gag ctg aaa act gaa tgt gca gtg gtg ttg gga agt 469  
Thr Ser Ser Thr Glu Leu Lys Thr Glu Cys Ala Val Val Leu Gly Ser  
77 82 87 92

ctt gct atg ggt act gaa aac aat gtc aag tct cta ctg gac tgc cat 517  
Leu Ala Met Gly Thr Glu Asn Asn Val Lys Ser Leu Leu Asp Cys His  
93 98 103 108

att atc cct gcc tta ttg caa gga cta ctg tcc cca gac ctg aag ttt 565  
Ile Ile Pro Ala Leu Leu Gln Gly Leu Leu Ser Pro Asp Leu Lys Phe  
109 114 119 124

att gaa gct tgc ctc cga tgc ctg cgt acc atc ttc acc agt cct gtc 613  
Ile Glu Ala Cys Leu Arg Cys Leu Arg Thr Ile Phe Thr Ser Pro Val  
125 130 135 140

act cca gag gag cta ctg tat aca gat gcc aca gtg ata cca cac ctc 661  
Thr Pro Glu Glu Leu Leu Tyr Thr Asp Ala Thr Val Ile Pro His Leu  
141 146 151 156

atg gca ctg ctt agc agg tcc cgc tat acc cag gag tac atc tgt cag 709  
Met Ala Leu Leu Ser Arg Ser Arg Tyr Thr Gln Glu Tyr Ile Cys Gln  
157 162 167 172

atc ttc tca cac tgc tgt aaa ggg cca gat cat caa aca att tta ttt 757  
Ile Phe Ser His Cys Cys Lys Gly Pro Asp His Gln Thr Ile Leu Phe  
173 178 183 188

aac cac ggt gca gtt cag aat att gct cac cta cta acc tca ctg tcc 805  
Asn His Gly Ala Val Gln Asn Ile Ala His Leu Leu Thr Ser Leu Ser  
189 194 199 204

tac aaa gtt cga atg caa gca ctg aaa tgt ttc tca gtt tta gct ttt 853  
Tyr Lys Val Arg Met Gln Ala Leu Lys Cys Phe Ser Val Leu Ala Phe



205	210	215	220	
gaa aac ccc cag gta	tcg atg acc ctg gta	aat gtt ttg gtt gat gga		901
Glu Asn Pro Gln Val	Ser Met Thr Leu Val	Asn Val Leu Val Asp Gly		
221	226	231	236	
gaa ttg tta cca cag	att ttt gtg aag atg	tta cag agg gat aag cct		949
Glu Leu Leu Pro Gln	Ile Phe Val Lys Met	Leu Gln Arg Asp Lys Pro		
237	242	247	252	
att gag atg cag ctc	aca tca gca aaa tgt	tta act tac atg tgt aga		997
Ile Glu Met Gln Leu	Thr Ser Ala Lys Cys	Leu Thr Tyr Met Cys Arg		
253	258	263	268	
gct gga gca att cgg	aca gat gat aac tgt	att gta tta aag aca tta		1045
Ala Gly Ala Ile Arg	Thr Asp Asp Asn Cys	Ile Val Leu Lys Thr Leu		
269	274	279	284	
cct tgt ttg gtt cga	atg tgc agt aag gag	aga tta cta gag gag aga		1093
Pro Cys Leu Val Arg	Met Cys Ser Lys Glu	Arg Leu Leu Glu Glu Arg		
285	290	295	300	
gtt gaa gga gct gag	aca ctt gcc tat ctg	att gaa cca gat gtt gag		1141
Val Glu Gly Ala Glu	Thr Leu Ala Tyr Leu	Ile Glu Pro Asp Val Glu		
301	306	311	316	
cta cag aga atc gct	agc ata act gat cac	ctc att gcc atg ctt gct		1189
Leu Gln Arg Ile Ala	Ser Ile Thr Asp His	Leu Ile Ala Met Leu Ala		
317	322	327	332	
gat tat ttc aag tat	ccc agc tca gtg agt	gcc atc act gat att aaa		1237
Asp Tyr Phe Lys Tyr	Pro Ser Ser Val Ser	Ala Ile Thr Asp Ile Lys		
333	338	343	348	
agg ctt gat cat gat	tta aaa cat gct cac	gaa ctc cgc cag gct gca		1285
Arg Leu Asp His Asp	Leu Lys His Ala His	Glu Leu Arg Gln Ala Ala		
349	354	359	364	
ttc aag ctc tat gcc	tct ctt gga gca aat	gat gaa gac atc cgg aag		1333
Phe Lys Leu Tyr Ala	Ser Leu Gly Ala Asn	Asp Glu Asp Ile Arg Lys		
365	370	375	380	
aag gtg agt ctg gga	gag ggg cgt ccc cca	gtc ctg aca gcc agc agg		1381
Lys Val Ser Leu Gly	Glu Gly Arg Pro Pro	Val Leu Thr Ala Ser Arg		
381	386	391	396	
cag gga gtg acg tca	acc tga aa gtcgtggtga	agagcactaa cagtgactgt		1434
Gln Gly Val Thr Ser	Thr *			
397	402			
ttgaatataa taaagcagag	tgactaaagg cataattgaa	gaatgaatgg gacccggatt		1494
tgggggggttg tttgtttgtt	tttagaacat agagtggcat	ggccgtgctg gaatgacaaa		1554
taactggcgt gctttttttt	tgtgtcatta atatgaatta	ttatgttgca catttttgca		1614
tgtgttctga taaaaatcaa	ttctagcact gtgaagcttc	agacaccttg aaagtccata		1674

cattagaatt gtaaattgta tttatggaaa taccttccaa tgctattgag aaattcaaatt 1734  
ctctattgta tattgttctt tgatatgtgg cttagtttta tgttttgatt ttttttgcta 1794  
ctgtgcaagt ttaatgtgaa taaaatcttt gtggaatgat gattttatgt ttaggtgagt 1854  
gggtcatctg gaattttccc agctccccca ggaaaatgta nggcacnggg tatagcacco 1914  
cttatgggta cctaaagccc cggncctaac cactggaacn ccaggttcnt ggatgg 1970

<210> 1018  
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<212> DNA  
<213> Homo sapiens

<220>  
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<222> (854) .. (1330)

<220>  
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<222> (1) ... (1432)  
<223> n = a,t,c or g

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agaaaagaca gaagtagaaa ggggtggtggc tgactgtctg acaaattgtt atcaggtatg 180  
caggaagtat atccttctcc aaaatatcat acttgcacac ccaggtagac acatttcctt 240  
ctacacagaa ttatcttcag agcttcttaa agcaaataaa gcctgcttca aggactgagt 300  
ccctagtcga attcccgga ggagtggagc ctgtcatatt ggtgaggggt tgccttgaat 360  
gtcatcccag tatttcaata ttgattaatt agtcttcctt catgggtcca actgcatagt 420  
ttttattttg ttgagtgttc tgacacatgg taaggacat gaaagtatcc tttgagataa 480  
tctttccatt catcagtgtt tatctagcat ctgctcaaga gtgtgctgca gtggagggaa 540  
atcagatgac ctcccagtct ggttgtgtta catacaatca tgtgtaagaa gtgccattca 600  
agccgtgtca ctggagggga ctgacagtga gtgagtgtgg ataaagagga cctcctgggg 660  
tgggcaatgt gagccctcag actctgtagg tattgcattt tgcagtgaac actggtagac 720  
atgtttttgtg gctcaagcca gcatgtgtgt gatggtttag gattcagtga cttttgatga 780  
tctggctgtg gacttcaccc caaaagaatg gactttactg gacccaactc agagaaacct 840

ctacagagat gtg	atg ctg gag aac tac aag aat ttg gcc aca gta gga	889
	Met Leu Glu Asn Tyr Lys Asn Leu Ala Thr Val Gly	
	1 5 10	
tat cag ctc ttc aaa ccc agt ctg atc tct tgg ctg gaa caa gaa gag	937	
Tyr Gln Leu Phe Lys Pro Ser Leu Ile Ser Trp Leu Glu Gln Glu Glu		
13 18 23 28		
tct agg aca gtg cag aga ggt gat ttc caa gct tca gaa tgg aaa gtg	985	
Ser Arg Thr Val Gln Arg Gly Asp Phe Gln Ala Ser Glu Trp Lys Val		
29 34 39 44		
caa ctt aaa acc aaa gag tta gcc ctt cag cag gat gtt ttg ggg gag	1033	
Gln Leu Lys Thr Lys Glu Leu Ala Leu Gln Gln Asp Val Leu Gly Glu		
45 50 55 60		
cca acc tcc agt ggg att caa atg ata gga agc cac aac gga ggg gag	1081	
Pro Thr Ser Ser Gly Ile Gln Met Ile Gly Ser His Asn Gly Gly Glu		
61 66 71 76		
gtc agt gat gtt aag caa tgt gga gat gtc tcc agt gaa cac tca tgc	1129	
Val Ser Asp Val Lys Gln Cys Gly Asp Val Ser Ser Glu His Ser Cys		
77 82 87 92		
ctt aag aca cat gtg aga act caa aat agt gag aac aca ttt gag tgt	1177	
Leu Lys Thr His Val Arg Thr Gln Asn Ser Glu Asn Thr Phe Glu Cys		
93 98 103 108		
tat ctg tat gga gta gac ttc ctt act ctg cac aag aaa acc tct act	1225	
Tyr Leu Tyr Gly Val Asp Phe Leu Thr Leu His Lys Lys Thr Ser Thr		
109 114 119 124		
gga gag caa cgt tct gta ttt agt cag tgt gga aaa gcc ttc agc ctg	1273	
Gly Glu Gln Arg Ser Val Phe Ser Gln Cys Gly Lys Ala Phe Ser Leu		
125 130 135 140		
aac cca gat gtt gtt tgc cag aag aac cgt tgc aca agg aag aag aaa	1321	
Asn Pro Asp Val Val Cys Gln Lys Asn Arg Cys Thr Arg Lys Lys Lys		
141 146 151 156		
gct ttt tga ttgcagt tgactctggg gaaatccttc cattaatcca ttcacacctt	1377	
Ala Phe *		
157		
ccaggacat ttaagaactc cacnatggga gaaagtctcc catggaaatg ggaag	1432	

<210> 1019  
 <211> 1477  
 <212> DNA  
 <213> Homo sapiens ,

<220> /  
 <221> CDS  
 <222> (67)..(753)

[illegible][illegible]

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Phe Ser Asp Ser Glu Cys Ala Arg Arg Ala Leu Glu Gln Leu Asn Gly  
175 180 185 190

ttt gag ctt gct ggt cga cct atg agg gtt ggc cat gtg act gag cga	684
Phe Glu Leu Ala Gly Arg Pro Met Arg Val Gly His Val Thr Glu Arg	
191 196 201 206	
ctg gat ggt ggc aca gac atc act ttt cct gat ggg gac cag gag ctg	732
Leu Asp Gly Gly Thr Asp Ile Thr Phe Pro Asp Gly Asp Gln Glu Leu	
207 212 217 222	
gat ctg gga tca gca ggt tga cg ttttcagctc atggcaaaac tggcagaagg	785
Asp Leu Gly Ser Ala Gly *	
223 228	
cgctggaatc caactgccaa gcactgctgc tgcctgctgct gccgcgcgcg cccaggctgc	845
tgccttgcaa ctgaatggag cagttccctt gggggccctg aatccagcag ctctgactgc	905
tctgagtcca gccctgaacc ttgcctccca gtgtttccag ctctccagcc tctttacccc	965
ccagaccatg taaatcagtg gcacagtata ctgcctcctt gtgcctctgg attctgccac	1025
ttcacatcta ctcttccatg gccccatttc tccattttgt ggaccaagcc atcctgaggg	1085
catggacatt gtctctgagg aaattggggc cacccttaag ataccaagaa aagctcctgc	1145
ccatggtccc actggaaatg gactctgctg agcaaagcca ccagttgaag agaacagaat	1205
ccacacctgc attgaatacc tgtttctcca tgtgtatcgt ctctgagatt accttcttgc	1265
cctttccaac accttagtga ttcctcaatt tctcccccat tgggaaggcc atagggcatt	1325
aaactggaag gaactggacc tcttctcctt ttctgtgac ctttnaacct ttagtctgtt	1385
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 <213> Homo sapiens

<220>  
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 <222> (168)..(1625)

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ttacacatcc ataagtagac ctttttgag cctcaccagc caattca atg gcg tcc	176
Met Ala Ser	

tct tct act gtg cct ctg gga ttt cac tat gaa aca aag tat gtt gtt	224
Ser Ser Thr Val Pro Leu Gly Phe His Tyr Glu Thr Lys Tyr Val Val	
4 9 14 19	
ctc agc tac ttg gga ctc ctc tct caa gag aag ctg caa gag caa cat	272
Leu Ser Tyr Leu Gly Leu Leu Ser Gln Glu Lys Leu Gln Glu Gln His	
20 25 30 35	
ctt tcc tca ccc caa ggg gtt caa cta gat ata gct tca caa tct ctg	320
Leu Ser Ser Pro Gln Gly Val Gln Leu Asp Ile Ala Ser Gln Ser Leu	
36 41 46 51	
gat caa gaa att tta tta aaa gtt aaa act gaa att gaa gaa gag cta	368
Asp Gln Glu Ile Leu Leu Lys Val Lys Thr Glu Ile Glu Glu Glu Leu	
52 57 62 67	
aaa tct ctg gac aaa gaa att tct gaa gcc ttc acc agc aca ggc ttt	416
Lys Ser Leu Asp Lys Glu Ile Ser Glu Ala Phe Thr Ser Thr Gly Phe	
68 73 78 83	
gac cgt cac act tct cca gtg ttc agc cct gcc aat cca gaa agc tca	464
Asp Arg His Thr Ser Pro Val Phe Ser Pro Ala Asn Pro Glu Ser Ser	
84 89 94 99	
atg gaa gac tgc ttg gcc cat ctt gga gaa aaa gtg tcc cag gaa ctg	512
Met Glu Asp Cys Leu Ala His Leu Gly Glu Lys Val Ser Gln Glu Leu	
100 105 110 115	
aaa gag cct ctc cat aaa gca ttg caa atg ctc ctg agc cag cca gtg	560
Lys Glu Pro Leu His Lys Ala Leu Gln Met Leu Leu Ser Gln Pro Val	
116 121 126 131	
aca tat cag gca ttt cgg gaa tgt aca ctg gag acc aca gtt cat gcc	608
Thr Tyr Gln Ala Phe Arg Glu Cys Thr Leu Glu Thr Thr Val His Ala	
132 137 142 147	
agc ggc tgg aat aag att ttg gtg cct ctg gtt ttg cta cga caa atg	656
Ser Gly Trp Asn Lys Ile Leu Val Pro Leu Val Leu Leu Arg Gln Met	
148 153 158 163	
ctt ttg gaa ttg aca aga ctt ggt caa gaa cct ttg agc gca ctg ctg	704
Leu Leu Glu Leu Thr Arg Leu Gly Gln Glu Pro Leu Ser Ala Leu Leu	
164 169 174 179	
cag ttt ggc gtg aca tac ctg gag gac tat tcg gca gag tac atc att	752
Gln Phe Gly Val Thr Tyr Leu Glu Asp Tyr Ser Ala Glu Tyr Ile Ile	
180 185 190 195	
cag caa ggt ggc tgg ggc act gtg ttt agt ctt gag tca gag gag gag	800
Gln Gln Gly Gly Trp Gly Thr Val Phe Ser Leu Glu Ser Glu Glu Glu	
196 201 206 211	
gaa tac cct gga atc act gca gaa gat agc aat gac att tac atc ctg	848
Glu Tyr Pro Gly Ile Thr Ala Glu Asp Ser Asn Asp Ile Tyr Ile Leu	
212 217 222 227	
ccc agc gac aac tct gga caa gtc agt ccc cca gag tct cca act gtg	896

Pro	Ser	Asp	Asn	Ser	Gly	Gln	Val	Ser	Pro	Pro	Glu	Ser	Pro	Thr	Val	
228					233					238					243	
acc	act	tcc	tgg	cag	tct	gag	agc	tta	cct	gtg	tca	ctg	tcg	gct	agc	944
Thr	Thr	Ser	Trp	Gln	Ser	Glu	Ser	Leu	Pro	Val	Ser	Leu	Ser	Ala	Ser	
244					249					254					259	
cag	agt	tgg	cac	aca	gaa	agc	ctg	cca	gtg	tca	cta	ggc	cct	gag	tcc	992
Gln	Ser	Trp	His	Thr	Glu	Ser	Leu	Pro	Val	Ser	Leu	Gly	Pro	Glu	Ser	
260					265					270					275	
tgg	cag	cag	att	gca	atg	gat	cct	gaa	gaa	gtg	aaa	agc	tta	gac	agc	1040
Trp	Gln	Gln	Ile	Ala	Met	Asp	Pro	Glu	Glu	Val	Lys	Ser	Leu	Asp	Ser	
276					281					286					291	
aac	gga	gct	gga	gag	aag	agt	gag	aac	aac	tcc	tct	aat	tct	gac	att	1088
Asn	Gly	Ala	Gly	Glu	Lys	Ser	Glu	Asn	Asn	Ser	Ser	Asn	Ser	Asp	Ile	
292					297					302					307	
gtg	cac	gtg	gag	aaa	gaa	gag	gtg	ccc	gag	ggc	atg	gaa	gag	gct	gct	1136
Val	His	Val	Glu	Lys	Glu	Glu	Val	Pro	Glu	Gly	Met	Glu	Glu	Ala	Ala	
308					313					318					323	
gtg	gct	tct	gtg	gtc	ttg	cca	gcg	cgg	gag	ctg	caa	gag	gca	ctt	cct	1184
Val	Ala	Ser	Val	Val	Leu	Pro	Ala	Arg	Glu	Leu	Gln	Glu	Ala	Leu	Pro	
324					329					334					339	
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Gly	Thr	Arg	Glu	Pro	Asp	Thr	Glu	Val	Ile	Thr	Val	Glu	Lys	Ser	Ser	
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cct	gct	aca	tct	ctg	ttt	gta	gaa	ctt	gat	gaa	gaa	gag	gtg	aaa	gca	1328
Pro	Ala	Thr	Ser	Leu	Phe	Val	Glu	Leu	Asp	Glu	Glu	Glu	Val	Lys	Ala	
372					377					382					387	
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Ala	Thr	Thr	Glu	Pro	Thr	Glu	Val	Glu	Glu	Val	Val	Pro	Ala	Leu	Glu	
388					393					398					403	
ccc	aca	gaa	acg	ctg	ctg	agt	gag	aag	gag	ata	aac	gca	agg	gaa	gag	1424
Pro	Thr	Glu	Thr	Leu	Leu	Ser	Glu	Lys	Glu	Ile	Asn	Ala	Arg	Glu	Glu	
404					409					414					419	
agc	ctt	gtg	gaa	gag	ctg	tcc	cct	gcc	agc	gag	aag	aag	ccc	gtg	ccg	1472
Ser	Leu	Val	Glu	Glu	Leu	Ser	Pro	Ala	Ser	Glu	Lys	Lys	Pro	Val	Pro	
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Pro	Ser	Glu	Gly	Lys	Ser	Arg	Leu	Ser	Pro	Ala	Gly	Glu	Met	Lys	Pro	
436					441					446					451	
atg	ccg	ctg	tct	gag	ggc	aag	tct	ata	ctg	ctg	ttt	gga	ggg	gct	gct	1568
Met	Pro	Leu	Ser	Glu	Gly	Lys	Ser	Ile	Leu	Leu	Phe	Gly	Gly	Ala	Ala	

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 Met Glu Glu Arg Ala Lys Phe Thr Val Tyr Lys  
 1 5  
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 Ile Leu Val Lys Lys Thr Pro Glu Glu Ser Trp Val Val Phe Arg Arg  
 12 17 22 27  
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 Tyr Thr Asp Phe Ser Arg Leu Asn Asp Lys Leu Lys Glu Met Phe Pro  
 28 33 38 43  
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 Gly Phe Arg Leu Ala Leu Pro Pro Lys Arg Trp Phe Lys Asp Asn Tyr  
 44 49 54 59  
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 Asn Ala Asp Phe Leu Glu Asp Arg Gln Leu Gly Leu Gln Ala Phe Leu  
 60 65 70 75  
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 Gln Asn Leu Val Ala His Lys Asp Ile Ala Asn Cys Leu Ala Val Arg  
 76 81 86 91  
 gaa ttt ctt tgt ttg gat gat cca ccg ggt cca ttt gat agc cta gag 399  
 Glu Phe Leu Cys Leu Asp Asp Pro Pro Gly Pro Phe Asp Ser Leu Glu  
 92 97 102 107  
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 Glu Ser Arg Ala Phe Cys Glu Thr Leu Glu Glu Thr Asn Tyr Arg Leu  
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Gln Lys Glu Leu Leu Glu Lys Gln Lys Glu Met Glu Ser Leu Lys Lys	
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Leu Leu Ser Glu Lys Gln Leu His Ile Asp Thr Leu Glu Asn Arg Ile	
140 145 150 155	
aga aca ttg tct tta gaa cct gaa gaa tca ctg gat gtg tca gaa aca	591
Arg Thr Leu Ser Leu Glu Pro Glu Glu Ser Leu Asp Val Ser Glu Thr	
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Glu Gly Glu Gln Ile Leu Lys Val Glu Ser Ser Ala Leu Glu Val Asp	
172 177 182 187	
caa gat gtc ctg gat gaa gaa tct aga gct gat aat aaa cca tgc tta	687
Gln Asp Val Leu Asp Glu Glu Ser Arg Ala Asp Asn Lys Pro Cys Leu	
188 193 198 203	
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Ser Phe Ser Glu Pro Glu Asn Ala Val Ser Glu Ile Glu Val Ala Glu	
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Val Ala Tyr Asp Ala Glu Glu Asp *	
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Gly Pro Leu Gly Ser Trp Gln Gln Trp Arg Arg Cys Leu Ser Ala Arg
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gat ggg tcc agg atg tta ctc ctt ctt ctt ttg ttg ggg tct ggg cag      151
Asp Gly Ser Arg Met Leu Leu Leu Leu Leu Leu Leu Gly Ser Gly Gln
22                               27                               32      37

ggg cca cag caa gtc ggg gcg ggt caa acg ttc gag tac ttg aaa cgg      199
Gly Pro Gln Gln Val Gly Ala Gly Gln Thr Phe Glu Tyr Leu Lys Arg
38                               43                               48      53

gag cac tcg ctg tcg aag ccc tac cag ggt gtg ggc aca ggc agt tcc      247
Glu His Ser Leu Ser Lys Pro Tyr Gln Gly Val Gly Thr Gly Ser Ser
54                               59                               64      69

tca ctg tgg aat ctg atg ggc aat gcc atg gtg atg acc cag tat atc      295
Ser Leu Trp Asn Leu Met Gly Asn Ala Met Val Met Thr Gln Tyr Ile
70                               75                               80      85

cgc ctt acc cca gat atg caa agt aaa cag ggt gcc ttg tgg aac cgg      343
Arg Leu Thr Pro Asp Met Gln Ser Lys Gln Gly Ala Leu Trp Asn Arg
86                               91                               96     101

gtg cca tgt ttc ctg aga gac tgg gag ttg cag gtg cac ttc aaa atc      391
Val Pro Cys Phe Leu Arg Asp Trp Glu Leu Gln Val His Phe Lys Ile
102                               107                              112     117

cat gga caa gga aag aag aat ctg cat ggg gat ggc ttg gca atc tgg      439
His Gly Gln Gly Lys Lys Asn Leu His Gly Asp Gly Leu Ala Ile Trp
118                               123                              128     133

tac aca aag gat cgg atg cag cca ggg cct gtg ttt gga aac atg gac      487
Tyr Thr Lys Asp Arg Met Gln Pro Gly Pro Val Phe Gly Asn Met Asp
134                               139                              144     149

aaa ttt gtg ggg ctg gga gta ttt gta gac acc tac ccc aat gag gag      535
Lys Phe Val Gly Leu Gly Val Phe Val Asp Thr Tyr Pro Asn Glu Glu
150                               155                              160     165

aag cag caa gag cgg gta ttc ccc tac atc tca gcc atg gtg aac aac      583
Lys Gln Gln Glu Arg Val Phe Pro Tyr Ile Ser Ala Met Val Asn Asn
166                               171                              176     181

ggc tcc ctc agc tat gat cat gag cgg gat ggg cgg cct aca gag ctg      631
Gly Ser Leu Ser Tyr Asp His Glu Arg Asp Gly Arg Pro Thr Glu Leu
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Gly Gly Cys Thr Ala Ile Val Arg Asn Leu His Tyr Asp Thr Phe Leu				
198	203	208	213	
gtg att cgc tac gtc aag agg cat ttg acg ata atg atg gat att gat				727
Val Ile Arg Tyr Val Lys Arg His Leu Thr Ile Met Met Asp Ile Asp				
214	219	224	229	
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Gly Lys His Glu Trp Arg Asp Cys Ile Glu Val Pro Gly Val Arg Leu				
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Pro Arg Gly Tyr Tyr Phe Gly Thr Ser Ser Ile Thr Gly Asp Leu Ser				
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gat aat cat gat gtc att tcc ttg aag ttg ttt gaa ctg aca gtg gag				871
Asp Asn His Asp Val Ile Ser Leu Lys Leu Phe Glu Leu Thr Val Glu				
262	267	272	277	
aga acc cca gaa gag gaa aag ctc cat cga gat gtg ttc ttg ccc tca				919
Arg Thr Pro Glu Glu Glu Lys Leu His Arg Asp Val Phe Leu Pro Ser				
278	283	288	293	
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Val Asp Asn Met Lys Leu Pro Glu Met Thr Ala Pro Leu Pro Pro Leu				
294	299	304	309	
agt ggc ctg gcc ctc ttc ctc atc gtc ttt ttc tcc ctg gtg ttt tct				1015
Ser Gly Leu Ala Leu Phe Leu Ile Val Phe Phe Ser Leu Val Phe Ser				
310	315	320	325	
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Val Phe Ala Ile Val Ile Gly Ile Ile Leu Tyr Asn Lys Trp Gln Glu				
326	331	336	341	
cag agc cga aag cgc ttc tac tg agccctcctg ctgccaccac ttttgtgact				1116
Gln Ser Arg Lys Arg Phe Tyr				
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Ser Ile Thr Leu Glu Asp Val Ala Val Asp Phe Thr Trp Glu Glu Trp  
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Gln Leu Leu Gly Ala Ala Gln Lys Asp Leu Tyr Arg Asp Val Met Leu  
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Glu Asn Tyr Ser Asn Leu Val Ala Val Gly Tyr Gln Ala Ser Lys Pro  
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Asp Ala Leu Phe Lys Leu Glu Gln Gly Glu Gln Leu Trp Thr Ile Glu  
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Asp Gly Ile His Ser Gly Ala Cys Ser Glu Ser Cys Ser Val Pro Arg  
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Leu Glu Arg Asn Gly Val Asn Leu Ala His Arg Asn Leu His Leu Leu  
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Asp Ser Ser Asp Ser Cys Ala Tyr Pro Gln His Gln His His Thr Trp  
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His Thr Val Ile Ile Gln His Met Glu Ser \*  
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atg tca tgg atc aag gaa gga gag ctg tca ctt tgg gag cgg ttc tgt	226
Met Ser Trp Ile Lys Glu Gly Glu Leu Ser Leu Trp Glu Arg Phe Cys	
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Ala Asn Ile Ile Lys Ala Gly Pro Met Pro Lys His Ile Ala Phe Ile	
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Met Asp Gly Asn Arg Arg Tyr Ala Lys Lys Cys Gln Val Glu Arg Gln	
33 38 43 48	
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Cys Leu Asn Leu Gly Ile Leu Glu Val Thr Val Tyr Ala Phe Ser Ile	
65 70 75 80	
gag aac ttc aaa cgc tcc aag agt gag gta gac ggg ctt atg gat ctg	466
Glu Asn Phe Lys Arg Ser Lys Ser Glu Val Asp Gly Leu Met Asp Leu	
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gcc cgg cag aag ttc agc cgc ttg atg gaa gaa aag gag aaa ctg cag	514
Ala Arg Gln Lys Phe Ser Arg Leu Met Glu Glu Lys Glu Lys Leu Gln	
97 102 107 112	
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Lys His Gly Val Cys Ile Arg Val Leu Gly Asp Leu His Leu Leu Pro	
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Tyr Asn Lys Cys Phe Leu Asn Val Cys Phe Ala Tyr Thr Ser Arg His	
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Glu Ile Ser Asn Ala Val Arg Glu Met Ala Trp Gly Val Glu Gln Gly	
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Tyr Thr Asn Arg Ser Pro His Pro Asp Ile Leu Ile Arg Thr Ser Gly	
193 198 203 208	

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gcc cga gac atg tat gca gag gag cgg aag agg cag cag ctg gag agg	994
Ala Arg Asp Met Tyr Ala Glu Glu Arg Lys Arg Gln Gln Leu Glu Arg	
257 262 267 272	
gac cag gct aca gtg aca gag cag ctg ctg cga gag ggg ctc caa gcc	1042
Asp Gln Ala Thr Val Thr Glu Gln Leu Leu Arg Glu Gly Leu Gln Ala	
273 278 283 288	
agt ggg gac gcc cag ctc cga agg aca cgc ttg cac aaa ctc tcg gcc	1090
Ser Gly Asp Ala Gln Leu Arg Arg Thr Arg Leu His Lys Leu Ser Ala	
289 294 299 304	
aga cgg gaa gag cga gtc caa ggc ttc ctg cag gcc ttg gaa ctc aag	1138
Arg Arg Glu Glu Arg Val Gln Gly Phe Leu Gln Ala Leu Glu Leu Lys	
305 310 315 320	
cga gct gac tgg ctg gcc cgt ctg ggc act gca tca gcc tga atgaggc	1187
Arg Ala Asp Trp Leu Ala Arg Leu Gly Thr Ala Ser Ala *	
321 326 331	
tgccacctg ccactttgcc ctgccctctg cctccagggc tccactcccc ttccttttct	1247
tggtgaaagg cacctccttt cctgataatg aatgggtgttc cctttgcttg gctggggagc	1307
ccccaggcc aggtttgctg gccataaata cctttgggct gcctgggaca ggctccttag	1367
gaggattgag ggtgaaagtt tccccgagt accctaaacc taggttttgt cccaatagg	1427
gtttgaaaag caaagggcc caactcttca ccaaaaaaaaa aaaa	1471

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 <212> DNA  
 <213> Homo sapiens

<220>  
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ccacgtcatg aggaagtgcc ggcccactga agccgtgggg acgcgcccag cggagcta	120
cagattacct ggctggtgtt tgcttgttct ggagtgatct tctgactgga aaagaact	178
atg tca tgg atc aag gaa gga gag ctg tca ctt tgg gag cgg ttc tgt	226
Met Ser Trp Ile Lys Glu Gly Glu Leu Ser Leu Trp Glu Arg Phe Cys	
1 5 10 15	
gcc aac atc ata aag gca ggc cca atg ccg aaa cac att gca ttc ata	274
Ala Asn Ile Ile Lys Ala Gly Pro Met Pro Lys His Ile Ala Phe Ile	
17 22 27 32	
atg gac ggg aac cgt cgc tat gcc aag aag tgc cag gtg gag cgg cag	322
Met Asp Gly Asn Arg Arg Tyr Ala Lys Lys Cys Gln Val Glu Arg Gln	
33 38 43 48	
gaa ggc cac tca cag ggc ttc aac aag cta gct gag act ctg cgg tgg	370
Glu Gly His Ser Gln Gly Phe Asn Lys Leu Ala Glu Thr Leu Arg Trp	
49 54 59 64	
tgt ttg aac ctg ggc atc cta gag gtg aca gtc tac gca ttc agc att	418
Cys Leu Asn Leu Gly Ile Leu Glu Val Thr Val Tyr Ala Phe Ser Ile	
65 70 75 80	
gag aac ttc aaa cgc tcc aag agt gag gta gac ggg ctt atg gat ctg	466
Glu Asn Phe Lys Arg Ser Lys Ser Glu Val Asp Gly Leu Met Asp Leu	
81 86 91 96	
gcc cgg cag aag ttc agc cgc ttg atg gaa gaa aag gag aaa ctg cag	514
Ala Arg Gln Lys Phe Ser Arg Leu Met Glu Glu Lys Glu Lys Leu Gln	
97 102 107 112	
aag cat ggg gtg tgt atc cgg gtc ctg ggc gat ctg cac ttg ttg ccc	562
Lys His Gly Val Cys Ile Arg Val Leu Gly Asp Leu His Leu Leu Pro	
113 118 123 128	
ttg gat ctc cag gag ctg att gca caa gct gta cag gcc acg aag aac	610
Leu Asp Leu Gln Glu Leu Ile Ala Gln Ala Val Gln Ala Thr Lys Asn	
129 134 139 144	
tac aac aat gat atc tct gag tct ctg ctt gat aag tgc ctc tat acc	658
Tyr Asn Asn Asp Ile Ser Glu Ser Leu Leu Asp Lys Cys Leu Tyr Thr	
145 150 155 160	
aac cgc tct cct cat cct gac atc ttg ata cgg act tct gga gaa gtg	706
Asn Arg Ser Pro His Pro Asp Ile Leu Ile Arg Thr Ser Gly Glu Val	
161 166 171 176	
cgg ctg agt gac ttc ttg cta tgg cag acc tct cac tcc tgc ctg gtg	754
Arg Leu Ser Asp Phe Leu Leu Trp Gln Thr Ser His Ser Cys Leu Val	
177 182 187 192	
ttc caa ccc gtt ctg tgg cca gag tat aca ttt tgg aac ctc ttc gag	802
Phe Gln Pro Val Leu Trp Pro Glu Tyr Thr Phe Trp Asn Leu Phe Glu	
193 198 203 208	
gcc atc ctg cag ttc cag atg aac cat agc gtg ctt cag aag gcc cga	850

Ala Ile Leu Gln Phe Gln Met Asn His Ser Val Leu Gln Lys Ala Arg	
209 214 219 224	
gac atg tat gca gag gag cgg aag agg cag cag ctg gag agg gac cag	898
Asp Met Tyr Ala Glu Glu Arg Lys Arg Gln Gln Leu Glu Arg Asp Gln	
225 230 235 240	
gct aca gtg aca gag cag ctg ctg cga gag ggg ctc caa gcc agt ggg	946
Ala Thr Val Thr Glu Gln Leu Leu Arg Glu Gly Leu Gln Ala Ser Gly	
241 246 251 256	
gac gcc cag ctc cga agg aca cgc ttg cac aaa ctc tcg gcc aga cgg	994
Asp Ala Gln Leu Arg Arg Thr Arg Leu His Lys Leu Ser Ala Arg Arg	
257 262 267 272	
gaa gag cga gtc caa ggc ttc ctg cag gcc ttg gaa ctc aag cga gct	1042
Glu Glu Arg Val Gln Gly Phe Leu Gln Ala Leu Glu Leu Lys Arg Ala	
273 278 283 288	
gac tgg ctg gcc cgt ctg ggc act gca tca gcc tga atga ggctggccac	1092
Asp Trp Leu Ala Arg Leu Gly Thr Ala Ser Ala *	
289 294 299	
ctgccacttt gccctgccct ctgcctccag ggctccactc cccttccttt tcttggtgaa	1152
aggcacctcc tttcctgata atgaatggtg ttccctttgc ttggctgggg agccccccag	1212
gccagggtttg ctggccataa ataccttttg gctgcctggg acaggctcct taggaggatt	1272
gagggtgaaa gtttcccccg agtaccctaa acctagggtt ggtccccaat aggggtttgga	1332
aagcaaaggg ccccaactct tcaccaaaaa aaaaaaa	1369

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (148)..(1131)

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ccgctctgcc acgctggtcc tggcctacct catgctgcac cagcggctgt ccttgcccca	120
ggcgggtgac accgtgaggc agcacg atg ggt ctt ccc caa ccg agg ctt	171
Met Gly Leu Pro Gln Pro Arg Leu	
1 5	
cct gca cca gct ctg cag gct gga cca gca act gcg ggg tgc cgg cca	219
Pro Ala Pro Ala Leu Gln Ala Gly Pro Ala Thr Ala Gly Cys Arg Pro	
9 14 19 24	

gag ctg agg ggc cag agc tgg tcc tta ctc cct gcc atg ggg ctc tgc	267
Glu Leu Arg Gly Gln Ser Trp Ser Leu Leu Pro Ala Met Gly Leu Cys	
25 30 35 40	
cac ttt gcc acc ctg gca ctg atc ctg ctg gtg ctg ctg gag gct ctg	315
His Phe Ala Thr Leu Ala Leu Ile Leu Leu Val Leu Leu Glu Ala Leu	
41 46 51 56	
gcc cag gcg gac aca cag aag atg gtg gaa gcc cag cgt ggg gtc ggc	363
Ala Gln Ala Asp Thr Gln Lys Met Val Glu Ala Gln Arg Gly Val Gly	
57 62 67 72	
cct aga gcc tgc tac tcc atc tgg ctc ctc ctg gcg cct aca ccc cct	411
Pro Arg Ala Cys Tyr Ser Ile Trp Leu Leu Leu Ala Pro Thr Pro Pro	
73 78 83 88	
ctc agc cac tgt ctt cag tct cca cag aaa cag cat caa gtg tgc gga	459
Leu Ser His Cys Leu Gln Ser Pro Gln Lys Gln His Gln Val Cys Gly	
89 94 99 104	
gac agg cgg ctg aaa gcc ggc agc acg aac tgc ccg tca gag aag tgc	507
Asp Arg Arg Leu Lys Ala Gly Ser Thr Asn Cys Pro Ser Glu Lys Cys	
105 110 115 120	
aca gcc tgg gcc aga tac tcc cac agg atg gac tca ctg cag aag cag	555
Thr Ala Trp Ala Arg Tyr Ser His Arg Met Asp Ser Leu Gln Lys Gln	
121 126 131 136	
gac ctc cgg agg ccc aag atc cat ggg gca gtc cag gca tct ccc tac	603
Asp Leu Arg Arg Pro Lys Ile His Gly Ala Val Gln Ala Ser Pro Tyr	
137 142 147 152	
cag ccg ccc aca ttg gct tgc ctg cag cgc ttg ctg tgg gtc cgt cag	651
Gln Pro Pro Thr Leu Ala Ser Leu Gln Arg Leu Leu Trp Val Arg Gln	
153 158 163 168	
gct gcc aca ctg aac cat atc gat gag gtc tgg ccc agc ctc ttc ctg	699
Ala Ala Thr Leu Asn His Ile Asp Glu Val Trp Pro Ser Leu Phe Leu	
169 174 179 184	
gga gat gcg tac gca gcc cgg gac aag agc aag ctg atc cag ctg gga	747
Gly Asp Ala Tyr Ala Ala Arg Asp Lys Ser Lys Leu Ile Gln Leu Gly	
185 190 195 200	
atc acc cac gtt gtg aat gcc gct gca ggc aag ttc cag gtg gac aca	795
Ile Thr His Val Val Asn Ala Ala Ala Gly Lys Phe Gln Val Asp Thr	
201 206 211 216	
ggc gcc aaa ttc tac cgt gga atg tcc ctg gag tac tat ggc atc gag	843
Gly Ala Lys Phe Tyr Arg Gly Met Ser Leu Glu Tyr Tyr Gly Ile Glu	
217 222 227 232	
gcg gat gac aac ccc ttc ttc gac ctc agt gtc tac ttt ctg cct gtt	891
Ala Asp Asp Asn Pro Phe Phe Asp Leu Ser Val Tyr Phe Leu Pro Val	
233 238 243 248	

gct cga tac atc cga gct gcc ctc agt gtt ccc caa ggc cgc gtg ctg	939
Ala Arg Tyr Ile Arg Ala Ala Leu Ser Val Pro Gln Gly Arg Val Leu	
249 254 259 264	
gta cac tgt gcc atg ggg gta agc cgc tct gcc aca ctt gtc ctg gcc	987
Val His Cys Ala Met Gly Val Ser Arg Ser Ala Thr Leu Val Leu Ala	
265 270 275 280	
ttc ctc atg atc tgt gag aac atg acg ctg gta gag gcc atc cag acg	1035
Phe Leu Met Ile Cys Glu Asn Met Thr Leu Val Glu Ala Ile Gln Thr	
281 286 291 296	
gtg cag gcc cac cgc aat atc tgc cct aac tca ggc ttc ctc cgg cag	1083
Val Gln Ala His Arg Asn Ile Cys Pro Asn Ser Gly Phe Leu Arg Gln	
297 302 307 312	
ctc cag gtt ctg gac aac cga ctg ggg cgg gag acg ggg cgg ttc tga	1131
Leu Gln Val Leu Asp Asn Arg Leu Gly Arg Glu Thr Gly Arg Phe *	
313 318 323 328	
tctggcaggc agccaggatc cctgaccctt ggcccaaccc caccagcctg gccctgggaa	1191
cagcaggctc tgctgtttct agtgaccctg agatgtaaac agcaagtggg ggctgaggca	1251
gaggcagggg tagctgggtg gtgacctctt agcgggtgga tttccctgac ccaattcaga	1311
gattctttat gcaaaagtga gttcagtcca tctctataat aaaatattca tcgtcataaa	1371
aaaaaaaa	1380

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (148)..(978)

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ggcgggtgac accgtgaggc agcacg      atg ggt ctt ccc caa ccg agg ctt	171
Met Gly Leu Pro Gln Pro Arg Leu	
1 5	
cct gca cca gct ctg cag gct gga cca gca act gcg ggg tgc cgg cca	219
Pro Ala Pro Ala Leu Gln Ala Gly Pro Ala Thr Ala Gly Cys Arg Pro	
9 14 19 24	
gag ctg agg ggc cag agc tgg tcc tta ctc cct gcc atg ggg ctc tgc	267
Glu Leu Arg Gly Gln Ser Trp Ser Leu Leu Pro Ala Met Gly Leu Cys	

25	30	35	40	
cac ttt gcc acc ctg gca ctg atc ctg ctg gtg ctg ctg gag gct ctg				315
His Phe Ala Thr Leu Ala Leu Ile Leu Leu Val Leu Leu Glu Ala Leu				
41	46	51	56	
gcc cag gcg gac aca cag aag atg gtg gaa gcc cag cgt ggg gtc ggc				363
Ala Gln Ala Asp Thr Gln Lys Met Val Glu Ala Gln Arg Gly Val Gly				
57	62	67	72	
cct aga gcc tgc tac tcc atc tgg ctc ctc ctg gcg cct aca ccc cct				411
Pro Arg Ala Cys Tyr Ser Ile Trp Leu Leu Leu Ala Pro Thr Pro Pro				
73	78	83	88	
ctc agc cac tgt ctt cag tct cca cag aaa cag cat caa gtg tgc gga				459
Leu Ser His Cys Leu Gln Ser Pro Gln Lys Gln His Gln Val Cys Gly				
89	94	99	104	
gac agg cgg ctg aaa gcc ggc agc acg aac tgc ccg tca gag aag tgc				507
Asp Arg Arg Leu Lys Ala Gly Ser Thr Asn Cys Pro Ser Glu Lys Cys				
105	110	115	120	
aca gcc tgg gcc aga tac tcc cac agg atg gac tca ctg cag aag cag				555
Thr Ala Trp Ala Arg Tyr Ser His Arg Met Asp Ser Leu Gln Lys Gln				
121	126	131	136	
gac ctc cgg agg ccc aag atc cat ggg gca gtc cag gca tct ccc tac				603
Asp Leu Arg Arg Pro Lys Ile His Gly Ala Val Gln Ala Ser Pro Tyr				
137	142	147	152	
cag ccg ccc aca ttg gct tgc ctg cag cgc ttg ctg tgg gtc cgt cag				651
Gln Pro Pro Thr Leu Ala Ser Leu Gln Arg Leu Leu Trp Val Arg Gln				
153	158	163	168	
gct gcc aca ctg aac cat atc gat gag gtc tgg ccc agc ctc ttc ctg				699
Ala Ala Thr Leu Asn His Ile Asp Glu Val Trp Pro Ser Leu Phe Leu				
169	174	179	184	
gga gat gcg tac gca gcc cgg gac aag agc aag ctg atc cag ctg gga				747
Gly Asp Ala Tyr Ala Ala Arg Asp Lys Ser Lys Leu Ile Gln Leu Gly				
185	190	195	200	
atc acc cac gtt gtg aat gcc gct gca ggc cgc gtg ctg gta cac tgt				795
Ile Thr His Val Val Asn Ala Ala Ala Gly Arg Val Leu Val His Cys				
201	206	211	216	
gcc atg ggg gta agc cgc tct gcc aca ctt gtc ctg gcc ttc ctc atg				843
Ala Met Gly Val Ser Arg Ser Ala Thr Leu Val Leu Ala Phe Leu Met				
217	222	227	232	
atc tgt gag aac atg acg ctg gta gag gcc atc cag acg gtg cag gcc				891
Ile Cys Glu Asn Met Thr Leu Val Glu Ala Ile Gln Thr Val Gln Ala				
233	238	243	248	
cac cgc aat atc tgc cct aac tca ggc ttc ctc cgg cag ctc cag gtt				939
His Arg Asn Ile Cys Pro Asn Ser Gly Phe Leu Arg Gln Leu Gln Val				
249	254	259	264	

ctg gac aac cga ctg ggg cgg gag acg ggg cgg ttc tga tctggcaggc 988  
 Leu Asp Asn Arg Leu Gly Arg Glu Thr Gly Arg Phe \*  
 265 270 275

agccaggatc cctgaccctt ggcccaaccc caccagcctg gccctgggaa cagcaggctc 1048  
 tgctgtttct agtgaccctg agatgtaaac agcaagtggg ggctgaggca gaggcaggga 1108  
 tagctgggtg gtgacctctt agcgggtgga tttccctgac ccaattcaga gattctttat 1168  
 gcaaaaagtga gttcagtcca tctctataat aaaatattca tcgtcataaa aaaaaaaaaa 1227

<210> 1028  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (227)..(499)

<400> 1028  
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 aaatattaat tttaagaacc tatactttta ttgaaatgta tcttgttttt aggtttatgt 120  
 ctcatgggat caacctgtga ctgctttaaa tcttttcaaa caaggcttag ataagtttcc 180  
 aggagaagta accctgctct gtggaattgc aagaatctat gaggaa atg aac aat 235  
 Met Asn Asn  
 1

atg tca tca gca gca gaa tat tac aaa gaa gtt ttg aaa caa gac aat 283  
 Met Ser Ser Ala Ala Glu Tyr Tyr Lys Glu Val Leu Lys Gln Asp Asn  
 4 9 14 19

act cat gtg gaa gcc atc gca tgc att gga agc aac cac ttc tat tct 331  
 Thr His Val Glu Ala Ile Ala Cys Ile Gly Ser Asn His Phe Tyr Ser  
 20 25 30 35

gat cag cca gat ata gct cta cgg ttt tac agg cgg ctg ctg cat atg 379  
 Asp Gln Pro Asp Ile Ala Leu Arg Phe Tyr Arg Arg Leu Leu His Met  
 36 41 46 51

ggc att tat aac ggc cag ctt ttt aac aat ctg ggg ctg tgt tgc ttc 427  
 Gly Ile Tyr Asn Gly Gln Leu Phe Asn Asn Leu Gly Leu Cys Cys Phe  
 52 57 62 67

tat gcc cag cag tat gat atg act ctg acc tca ttt gaa cgt gcc ctt 475  
 Tyr Ala Gln Gln Tyr Asp Met Thr Leu Thr Ser Phe Glu Arg Ala Leu  
 68 73 /78 83

tct ttg gct gaa aat gat gaa tag gcagctgatg tctggtacta cttgggacat 529

Ser Leu Ala Glu Asn Asp Glu \*

84

89

gtagctgtgg gaataggaga tacaaatttg gcccatcagt gcttcaggct ggctctggtc 589  
aacaacaaca accacgccga ggcctacaac aacctggctg tgctggagat gcggaagggc 649  
cacgttgaac aggcaagggc actattacaa actgcatcat cattagcacc ccatatgtat 709  
gaaccgcatt ttaattttgc aacaatctct gataagattg gagatctgca gagaagctat 769  
gttgctgctg agaagtctga agcagcattt ccagaccatg tggacacaca acatttaatt 829  
aaacaattaa ggcagcattt tgctatgctc tgattgttcc ttagaccaca tatgttctta 889  
tgaagcagca ttatgcaagg ggaaaaaagc actatgtctg tgtatgtatg tatatagtgt 949  
aatacgata ttttaacaaa cctgtccttg atattagtta aggtgacaca taagggtgac 1009  
acagaatgtg taatgcaaat ttcatagtaa tagtaacttt ataaaataat attataaaat 1069  
acaggattta aacctttcta aatagatcct gaaactgtct ctcacattat atagtagatg 1129  
tttgtttata atgtttacaa aacattttgg tgaatttcct caatgtttta taaatgtaca 1189  
ttttttaagt ccttaagctg actcttagcc atcatgtagc ttaaggagtc tgaaatctgc 1249  
cattaaaact gcacctttaa gccagggtg gtagcatgtg cctatagtcc cagctacttg 1309  
ggagggtggag gtgggaggat tataaataga gactttcctt aagactttta aaatgtattt 1369  
aaaactattt tttattaaat actttgtgat ttcctattaa gctttaaaat aaatcattgt 1429  
gtaaacacc atcaaaaaaa aaaaaaaa 1457

<210> 1029

<211> 2375

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (63)..(1388)

<400> 1029

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Met Ala Val Val Pro Ala Ser Leu Ser Gly Gln Asp Val Gly Ser  
1 5 10  
ttt gca tat ctt aca att aaa gac aga ata cca cag atc tta act aag 155  
Phe Ala Tyr Leu Thr Ile Lys Asp Arg Ile Pro Gln Ile Leu Thr Lys  
16 21 26 31

gtt att gat aca ttg cat cga cat aaa agt gaa ttt ttt gag aaa cac	203
Val Ile Asp Thr Leu His Arg His Lys Ser Glu Phe Phe Glu Lys His	
32 37 42 47	
gga gag gaa ggc gtg gaa gct gaa aag aaa gct atc tct ctc ctt tct	251
Gly Glu Glu Gly Val Glu Ala Glu Lys Lys Ala Ile Ser Leu Leu Ser	
48 53 58 63	
aaa tta cgg aat gaa ttg caa aca gat aaa cca ttt atc ccc ttg gtt	299
Lys Leu Arg Asn Glu Leu Gln Thr Asp Lys Pro Phe Ile Pro Leu Val	
64 69 74 79	
gag aaa ttt gtt gat act gat ata tgg aat cag tac cta gaa tat caa	347
Glu Lys Phe Val Asp Thr Asp Ile Trp Asn Gln Tyr Leu Glu Tyr Gln	
80 85 90 95	
cag agt ctt tta aat gaa agt gat gga aaa tca aga tgg ttc tac tca	395
Gln Ser Leu Leu Asn Glu Ser Asp Gly Lys Ser Arg Trp Phe Tyr Ser	
96 101 106 111	
ccg tgg ttg ttg gta gaa tgt tac atg tat cga aga att cat gaa gca	443
Pro Trp Leu Leu Val Glu Cys Tyr Met Tyr Arg Arg Ile His Glu Ala	
112 117 122 127	
att atc cag agt cca cca atc gat tac ttt gat gta ttt aaa gaa tca	491
Ile Ile Gln Ser Pro Pro Ile Asp Tyr Phe Asp Val Phe Lys Glu Ser	
128 133 138 143	
aaa gag caa aat ttc tat ggg tca cag gaa tcc atc att gct tta tgt	539
Lys Glu Gln Asn Phe Tyr Gly Ser Gln Glu Ser Ile Ile Ala Leu Cys	
144 149 154 159	
act cac ctg caa caa ttg ata aga act att gaa gac cta gat gaa aat	587
Thr His Leu Gln Gln Leu Ile Arg Thr Ile Glu Asp Leu Asp Glu Asn	
160 165 170 175	
cag ctg aaa gat gag ttt ttt aaa ctt ctg cag att tca ctg tgg gga	635
Gln Leu Lys Asp Glu Phe Phe Lys Leu Leu Gln Ile Ser Leu Trp Gly	
176 181 186 191	
aat aag tgt gat ctg tct ctc tca ggt gga gaa agt agt tct cag aat	683
Asn Lys Cys Asp Leu Ser Leu Ser Gly Gly Glu Ser Ser Ser Gln Asn	
192 197 202 207	
acc aat gta cta aat tca ttg gaa gac cta aaa cct ttc att tta ttg	731
Thr Asn Val Leu Asn Ser Leu Glu Asp Leu Lys Pro Phe Ile Leu Leu	
208 213 218 223	
aat gat atg gaa cat ctt tgg tca ttg ctt agc aat tgc aag aaa aca	779
Asn Asp Met Glu His Leu Trp Ser Leu Leu Ser Asn Cys Lys Lys Thr	
224 229 234 239	
aga gaa aaa gct tct gct act aga gtg tat att gtt ctc gat aat tct	827
Arg Glu Lys Ala Ser Ala Thr Arg Val Tyr Ile Val Leu Asp Asn Ser	
240 245 250 255	



gga ttt gag ctt gtt aca gat tta ata tta gcc gac ttc ttg ttg tcc	875
Gly Phe Glu Leu Val Thr Asp Leu Ile Leu Ala Asp Phe Leu Leu Ser	
256 261 266 271	
tct gaa ctg gct act gag gtt cat ttt tat gga aaa aca att cca tgg	923
Ser Glu Leu Ala Thr Glu Val His Phe Tyr Gly Lys Thr Ile Pro Trp	
272 277 282 287	
ttt gtt tct gat act act ata cat gat ttt aat tgg tta att gaa cag	971
Phe Val Ser Asp Thr Thr Ile His Asp Phe Asn Trp Leu Ile Glu Gln	
288 293 298 303	
gta aaa cac agt aat cat aag tgg atg tcc aag tgt ggg gct gac tgg	1019
Val Lys His Ser Asn His Lys Trp Met Ser Lys Cys Gly Ala Asp Trp	
304 309 314 319	
gaa gag tat att aaa atg ggt aaa tgg gtt tac cac aat cat ata ttt	1067
Glu Glu Tyr Ile Lys Met Gly Lys Trp Val Tyr His Asn His Ile Phe	
320 325 330 335	
tgg act ctg cct cat gag tac tgt gca atg cct cag gtt gca cct gac	1115
Trp Thr Leu Pro His Glu Tyr Cys Ala Met Pro Gln Val Ala Pro Asp	
336 341 346 351	
tta tat gct gaa cta cag aag gca cat tta att tta ttc aag ggt gat	1163
Leu Tyr Ala Glu Leu Gln Lys Ala His Leu Ile Leu Phe Lys Gly Asp	
352 357 362 367	
ttg aat tac agg aag ttg aca ggt gac aga aaa tgg gag ttt tct gtt	1211
Leu Asn Tyr Arg Lys Leu Thr Gly Asp Arg Lys Trp Glu Phe Ser Val	
368 373 378 383	
cca ttt cat cag gct ctg aat ggc ttc cat cct gca cca ctc tgt acc	1259
Pro Phe His Gln Ala Leu Asn Gly Phe His Pro Ala Pro Leu Cys Thr	
384 389 394 399	
ata aga aca tta aaa gct gaa att cag gtt ggt ctg cag cct ggg caa	1307
Ile Arg Thr Leu Lys Ala Glu Ile Gln Val Gly Leu Gln Pro Gly Gln	
400 405 410 415	
ggg gaa cag ctc ctg gcc tct gag ccc agc tgg tgg acc act gga aaa	1355
Gly Glu Gln Leu Leu Ala Ser Glu Pro Ser Trp Trp Thr Thr Gly Lys	
416 421 426 431	
tat gga ata ttt cag tac gat ggt ccc ctt tga cttgattt aggagctctc	1406
Tyr Gly Ile Phe Gln Tyr Asp Gly Pro Leu *	
432 437 442	
agttgcatag aaagatctgg tgagcacctt ttcaccccca gaaaaggagc acgtgaattg	1466
agtcgcctgg cggtctgtga cgcgctcagg gaagcttagc ttcttggtgc ccatctacgt	1526
gcaactggatg atttttcttt tgaacatttt gcccactac actgttttgg ggatagctgg	1586
gttaagcaag ttaaagatat ttacatttat attggaattt tagcaacttt ttttcaggtt	1646
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[illegible]

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<400> 1030

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23

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 Ala Asn Leu Gly Asp Gly Pro Ser \*  
 39 44

caggggcagg ccaatgacca gcttcccca acccctcctt caacacctga ttcagaatca 321  
 gacctcaaat tgccttaaaa atgggctgct gctcctgctg ccctgtgggc tgtgccaagt 381  
 gtgcccaggg ctgcatctgc aaagggacgt cagacaagtg cagctgctgt gcctgatgcc 441  
 aagacagctg tgct 455

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 Met Thr Ala Ser Ala Gln Pro Arg Gly  
 1 5

cgg cgg cca gga gtc gga gtc gga gtc gtg gtg acc agc tgc aag cat 100  
 Arg Arg Pro Gly Val Gly Val Gly Val Val Val Thr Ser Cys Lys His  
 10 15 20 25

ccg cgt tgc gtc ctc ctg ggg aag agg aaa ggc tcg gtt gga gct ggc 148  
 Pro Arg Cys Val Leu Leu Gly Lys Arg Lys Gly Ser Val Gly Ala Gly  
 26 31 36 41

agt ttc caa ctc cct gga ggt cat ctg gag ttc ggt gaa acc tgg gaa 196  
 Ser Phe Gln Leu Pro Gly Gly His Leu Glu Phe Gly Glu Thr Trp Glu  
 42 47 52 57

gaa tgt gct caa agg gaa acc tgg gaa gaa gca gct ctt cac ctg aaa 244  
 Glu Cys Ala Gln Arg Glu Thr Trp Glu Glu Ala Ala Leu His Leu Lys  
 58 63 68 73

aat gtt cac ttt gcc tca gtt gtg aat tct ttc att gag aag gag aat 292  
 Asn Val His Phe Ala Ser Val Val Asn Ser Phe Ile Glu Lys Glu Asn  
 74 79 84 89

tac cat tat gtt act ata tta atg aaa gga gaa gtg gat gtg act cat 340  
 Tyr His Tyr Val Thr Ile Leu Met Lys Gly Glu Val Asp Val Thr His  
 90 95 100 105

gat tca gaa cca aag aat gta gag cct gaa aaa aat gaa agt tgg gag 388  
 Asp Ser Glu Pro Lys Asn Val Glu Pro Glu Lys Asn Glu Ser Trp Glu  
 106 111 116 121

tgg gtt cct tgg gaa gaa cta cct ccc ctg gac cag ctt ttc tgg gga	436
Trp Val Pro Trp Glu Glu Leu Pro Pro Leu Asp Gln Leu Phe Trp Gly	
122 127 132 137	
ctg cgt tgt tta aaa gaa caa ggc tat gat cca ttt aaa gaa gat ctg	484
Leu Arg Cys Leu Lys Glu Gln Gly Tyr Asp Pro Phe Lys Glu Asp Leu	
138 143 148 153	
aac cat ctg gtg gga tac aaa gga aat cat ctc tag gtgg ccgagaagat	534
Asn His Leu Val Gly Tyr Lys Gly Asn His Leu *	
154 159 164	
ttgattttct ttaaaaagac aagaataagg tctgggttagg gaatgaaaaa tgtatacatt	594
tccgaacaac tccattttat ctaaaaaagt tcttgatgatt gccagtttat ttgcagtctc	654
ttaatgtatc cccactctt tcagccagta cttgagaaaa tttttctgaa atatgtcatt	714
gaattgtatt ccagacacag aatacatgat aaatactgat attatgggta atctgctttc	774
catatttacc tatgatattt actgtgcagt ttgtcattac tagcttgcac ggagtaggat	834
gcagtcaaat ttgccttagt gtttctgttc aaatagagac ctgaattcaa atattgtagt	894
ttaggttcaa acagagtatg gctgggtgg	922

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ttacgcctac ggtaaatgtgg gccctgatgc cctcattgaa atg gac cct gag gcc	175
Met Asp Pro Glu Ala	
1	
agt gac ctc tcc cgg ggc att ctg gcg ctc aga gat gtg gct gct gag	223
Ser Asp Leu Ser Arg Gly Ile Leu Ala Leu Arg Asp Val Ala Ala Glu	
6 11 16 21	
gct ggg gtc agc aaa tat aca ggg ggc cga ggc gtc agc gtg ggc ccc	271
Ala Gly Val Ser Lys Tyr Thr Gly Gly Arg Gly Val Ser Val Gly Pro	
22 27 32 37	
atc ctc agc agc agt gcc tcg gat atc ttc tgc gac aat gag aat ggg	319
Ile Leu Ser Ser Ser Ala Ser Asp Ile Phe Cys Asp Asn Glu Asn Gly	

38	43	48	53	
cct aac ttc ctt ttc	cac aac cgg ggc gat	ggc acc ttt gtg gac gct		367
Pro Asn Phe Leu Phe	His Asn Arg Gly Asp	Gly Thr Phe Val Asp Ala		
54	59	64	69	
gcg gcc agt gct ggt	gtg gac gac ccc cac	cag cat ggg cga ggt gtc		415
Ala Ala Ser Ala Gly	Val Asp Asp Pro His	Gln His Gly Arg Gly Val		
70	75	80	85	
gcc ctg gct gac ttc	aac cgt gat ggc aaa	gtg gac atc gtc tat ggc		463
Ala Leu Ala Asp Phe	Asn Arg Asp Gly Lys	Val Asp Ile Val Tyr Gly		
86	91	96	101	
aac tgg aat ggc ccc	cac cgc ctc tat ctg	caa atg agc acc cat ggg		511
Asn Trp Asn Gly Pro	His Arg Leu Tyr Leu	Gln Met Ser Thr His Gly		
102	107	112	117	
aag gtc cgc ttc cgg	gac atc gcc tca ccc	aag ttc tcc atg ccc tcc		559
Lys Val Arg Phe Arg	Asp Ile Ala Ser Pro	Lys Phe Ser Met Pro Ser		
118	123	128	133	
cct gtc cgc acg gtc	atc acc gcc gac ttt	gac aat gac cag gag ctg		607
Pro Val Arg Thr Val	Ile Thr Ala Asp Phe	Asp Asn Asp Gln Glu Leu		
134	139	144	149	
gag atc ttc ttc aac	aac att gcc tac cgc	agc tcc tca gcc aac cgc		655
Glu Ile Phe Phe Asn	Asn Ile Ala Tyr Arg	Ser Ser Ser Ala Asn Arg		
150	155	160	165	
ctc ttc cgc gtc atc	cgt aga gag cac gga	gac ccc ctc atc gag gag		703
Leu Phe Arg Val Ile	Arg Arg Glu His Gly	Asp Pro Leu Ile Glu Glu		
166	171	176	181	
ctc aat ccc ggc gac	gcc ttg gag cct gag	ggc cgg ggc aca ggg ggt		751
Leu Asn Pro Gly Asp	Ala Leu Glu Pro Glu	Gly Arg Gly Thr Gly Gly		
182	187	192	197	
gtg gtg acc gac ttc	gac gga gac ggg atg	ctg gac ctc atc ttg tcc		799
Val Val Thr Asp Phe	Asp Gly Asp Gly Met	Leu Asp Leu Ile Leu Ser		
198	203	208	213	
cat gga gag tcc atg	gct cag ccg ctg tcc	gtc ttc cgg ggc aat cag		847
His Gly Glu Ser Met	Ala Gln Pro Leu Ser	Val Phe Arg Gly Asn Gln		
214	219	224	229	
ggc ttc aac aac aac	tgg ctg cga gtg gtg	cca cgc acc cgg ttt ggg		895
Gly Phe Asn Asn Asn	Trp Leu Arg Val Val	Pro Arg Thr Arg Phe Gly		
230	235	240	245	
gcc ttt gcc agg gga	gct aag gtc gtg ctc	tac acc aag aag agt ggg		943
Ala Phe Ala Arg Gly	Ala Lys Val Val Leu	Tyr Thr Lys Lys Ser Gly		
246	251	256	261	
gcc cac ctg agg atc	atc gac ggg ggc tca	ggc tac ctg tgt gag atg		991
Ala His Leu Arg Ile	Ile Asp Gly Gly Ser	Gly Tyr Leu Cys Glu Met		
262	267	272	277	

gag ccc gtg gca cac ttt ggc ctg ggg aag gat gaa gcc agc agt gtg	1039
Glu Pro Val Ala His Phe Gly Leu Gly Lys Asp Glu Ala Ser Ser Val	
278 283 288 293	
gag gtg acg tgg cca gat ggc aag atg gtg agc cgg aac gtg gcc agc	1087
Glu Val Thr Trp Pro Asp Gly Lys Met Val Ser Arg Asn Val Ala Ser	
294 299 304 309	
ggg gag atg aac tca gtg ctg gag atc ctc tac ccc cgg gat gag gac	1135
Gly Glu Met Asn Ser Val Leu Glu Ile Leu Tyr Pro Arg Asp Glu Asp	
310 315 320 325	
aca ctt cag gac cca gcc cca ctg gag tgt ggc caa gga ttc tcc cag	1183
Thr Leu Gln Asp Pro Ala Pro Leu Glu Cys Gly Gln Gly Phe Ser Gln	
326 331 336 341	
cag gaa aat ggc cat tgc atg gac acc aat gaa tgc atc cag ttc cca	1231
Gln Glu Asn Gly His Cys Met Asp Thr Asn Glu Cys Ile Gln Phe Pro	
342 347 352 357	
ttc gtg tgc cct cga gac aag ccc gta tgt gtc aac acc tat gga agc	1279
Phe Val Cys Pro Arg Asp Lys Pro Val Cys Val Asn Thr Tyr Gly Ser	
358 363 368 373	
tac agg tgc cgg acc aac aag aag tgc agt cgg ggc tac gag ccc aac	1327
Tyr Arg Cys Arg Thr Asn Lys Lys Cys Ser Arg Gly Tyr Glu Pro Asn	
374 379 384 389	
gag gat ggc aca gcc tgc gtg gct caa gtg gcc ttt tta ggt ggg tat	1375
Glu Asp Gly Thr Ala Cys Val Ala Gln Val Ala Phe Leu Gly Gly Tyr	
390 395 400 405	
tct tca gcc gcc tct aga atc tct gag cct ctc tct cgg gcc tca tat	1423
Ser Ser Ala Ala Ser Arg Ile Ser Glu Pro Leu Ser Arg Ala Ser Tyr	
406 411 416 421	
ctt tct cta ggc ctt gga ctt tgc ctt cag tta tat gca ctt taa atc	1471
Leu Ser Leu Gly Leu Gly Leu Cys Leu Gln Leu Tyr Ala Leu *	
422 427 432	
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 aaagagaagg cggctgtggc ggcagcggca gcccagcc atg ctg tgt tat gtg 174  
 Met Leu Cys Tyr Val  
 1  
 acg agg ccg gac gcg gtg ctg atg gag gtg gag gtg gag gcg aaa gcc 222  
 Thr Arg Pro Asp Ala Val Leu Met Glu Val Glu Val Glu Ala Lys Ala  
 6 11 16 21  
 aac ggc gag gac tgc ctc aac cag gtg tgc agg cga ctg gga atc ata 270  
 Asn Gly Glu Asp Cys Leu Asn Gln Val Cys Arg Arg Leu Gly Ile Ile  
 22 27 32 37  
 gaa gtt gac tat ttt gga ctg cag ttt acg ggt agc aaa ggt gaa agt 318  
 Glu Val Asp Tyr Phe Gly Leu Gln Phe Thr Gly Ser Lys Gly Glu Ser  
 38 43 48 53  
 tta tgg cta aac ctg aga aac cgg atc tcc cag cag atg gat ggg cta 366  
 Leu Trp Leu Asn Leu Arg Asn Arg Ile Ser Gln Gln Met Asp Gly Leu  
 54 59 64 69  
 gcc cct tac agg ctt aaa ctt aga gtc aag ttc ttc gtg gag cct cat 414  
 Ala Pro Tyr Arg Leu Lys Leu Arg Val Lys Phe Phe Val Glu Pro His  
 70 75 80 85  
 ctc atc tta cag gag cag act agg cat atc ttt ttc ttg cac atc aag 462  
 Leu Ile Leu Gln Glu Gln Thr Arg His Ile Phe Phe Leu His Ile Lys  
 86 91 96 101  
 gag gcc ctc ttg gca ggc cac ctc ttg tgt tcc cca gag cag gca gtg 510  
 Glu Ala Leu Leu Ala Gly His Leu Leu Cys Ser Pro Glu Gln Ala Val  
 102 107 112 117  
 gaa ctc agt gcc ctc ctg gcc cag acc aag ttt gga gac tac aac cag 558  
 Glu Leu Ser Ala Leu Leu Ala Gln Thr Lys Phe Gly Asp Tyr Asn Gln  
 118 123 128 133  
 aac act gcc aag tat aac tat gag gag ctc tgt gcc aag gag ctc tcc 606  
 Asn Thr Ala Lys Tyr Asn Tyr Glu Glu Leu Cys Ala Lys Glu Leu Ser  
 134 139 144 149  
 tct gcc acc ttg aac agc att gtt gca aaa cat aag gag ttg gag ggg 654  
 Ser Ala Thr Leu Asn Ser Ile Val Ala Lys His Lys Glu Leu Glu Gly  
 150 155 160 165  
 acc agc cag gct tca gct gaa tac caa gtt ttg cag att gtg tcg gca 702  
 Thr Ser Gln Ala Ser Ala Glu Tyr Gln Val Leu Gln Ile Val Ser Ala  
 166 171 176 181  
 atg gaa aac tat ggc ata gaa tgg cat tct gtg cgg gat agc gaa ggg 750  
 Met Glu Asn Tyr Gly Ile Glu Trp His Ser Val Arg Asp Ser Glu Gly  
 182 187 192 197  
 cag aaa ctg ctc att ggg gtt gga cct gaa gga atc tca att tgt aaa 798  
 Gln Lys Leu Leu Ile Gly Val Gly Pro Glu Gly Ile Ser Ile Cys Lys

198	203	208	213	
gat gac ttt agc cca att aat agg ata gct tat cct gtg gtg cag atg				846
Asp Asp Phe Ser Pro Ile Asn Arg Ile Ala Tyr Pro Val Val Gln Met				
214	219	224	229	
gcc acc cag tca gga aag aat gta tat ttg acg gtc acc aag gaa tct				894
Ala Thr Gln Ser Gly Lys Asn Val Tyr Leu Thr Val Thr Lys Glu Ser				
230	235	240	245	
ggg aac agc atc gtg ctt ttg ttt aaa atg atc agc acc agg gcg gcc				942
Gly Asn Ser Ile Val Leu Leu Phe Lys Met Ile Ser Thr Arg Ala Ala				
246	251	256	261	
agc ggg ctc tac cga gcg ata aca gag acg cac gca ttc tac agg tgt				990
Ser Gly Leu Tyr Arg Ala Ile Thr Glu Thr His Ala Phe Tyr Arg Cys				
262	267	272	277	
gac aca gtg acc agc gcc gtg atg atg cag tat agc cgt gac ttg aag				1038
Asp Thr Val Thr Ser Ala Val Met Met Gln Tyr Ser Arg Asp Leu Lys				
278	283	288	293	
ggc cac ttg gca tct ctg ttt ctg aat gaa aac att aac ctt ggc aag				1086
Gly His Leu Ala Ser Leu Phe Leu Asn Glu Asn Ile Asn Leu Gly Lys				
294	299	304	309	
aaa tat gtc ttt gat att aaa aga aca tca aag gag gtg tat gac cat				1134
Lys Tyr Val Phe Asp Ile Lys Arg Thr Ser Lys Glu Val Tyr Asp His				
310	315	320	325	
gcc agg agg gct ctg tac aat gct ggc gtt gtg gac ctc gtt tca aga				1182
Ala Arg Arg Ala Leu Tyr Asn Ala Gly Val Val Asp Leu Val Ser Arg				
326	331	336	341	
aac aac cag agc cct tca cac tcg cct ctg aag tcc tca gaa agc agc				1230
Asn Asn Gln Ser Pro Ser His Ser Pro Leu Lys Ser Ser Glu Ser Ser				
342	347	352	357	
atg aac tgc agc agc tgc gag ggc ctc agc tgc cag cag acc cgg gtg				1278
Met Asn Cys Ser Ser Cys Glu Gly Leu Ser Cys Gln Gln Thr Arg Val				
358	363	368	373	
ctg cag gag aag cta cgc aag ctg aag gaa gcc atg ctg tgc atg gtg				1326
Leu Gln Glu Lys Leu Arg Lys Leu Lys Glu Ala Met Leu Cys Met Val				
374	379	384	389	
tgc tgc gag gag gag atc aac tcc acc ttc tgt ccc tgt ggc cac act				1374
Cys Cys Glu Glu Glu Ile Asn Ser Thr Phe Cys Pro Cys Gly His Thr				
390	395	400	405	
gtg tgc tgt gag agc tgc gcc gcc cag cta cag tca tgt ccc gtc tgc				1422
Val Cys Cys Glu Ser Cys Ala Ala Gln Leu Gln Ser Cys Pro Val Cys				
406	411	416	421	
agg tcg cgt gtg gag cat gtc cag cac gtc tat ctg cca acg cac acc				1470
Arg Ser Arg Val Glu His Val Gln His Val Tyr Leu Pro Thr His Thr				
422	427	432	437	



agt ctt ctc aat ctg act gta atc taa tctgt tgtgcttttg ttggacttgg 1522  
 Ser Leu Leu Asn Leu Thr Val Ile \*  
 438 443

catgtttcca tgaactgcac tattataaac tattaaaatg atagattgtg gagaaagtaa 1582

ttattccaac acccatctgc catgcgatgt taaaaaaaaa aaaa 1626

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<220>  
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 <222> (120)..(2024)

<400> 1034

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atg gca gag gag cag gag ttc acc cag ctc tgc aag ttg cct gca cag 167

Met Ala Glu Glu Gln Glu Phe Thr Gln Leu Cys Lys Leu Pro Ala Gln

1 5 10 15

ccc tca cac cca cac tgc gtg aac aac acc tac cgc agc gca cag cac 215

Pro Ser His Pro His Cys Val Asn Asn Thr Tyr Arg Ser Ala Gln His

17 22 27 32

tcc cag gct ctg ctc cga ggg ctg ctg gct ctc cgg gac agc gga atc 263

Ser Gln Ala Leu Leu Arg Gly Leu Leu Ala Leu Arg Asp Ser Gly Ile

33 38 43 48

ctc ttc gat gtt gtg ctg gtg gtg gag ggc aga cac atc gag gcc cat 311

Leu Phe Asp Val Val Leu Val Val Glu Gly Arg His Ile Glu Ala His

49 54 59 64

cgc atc ctg ctg gct gcg tcc tgc gat tac ttc aaa gga atg ttt gct 359

Arg Ile Leu Leu Ala Ala Ser Cys Asp Tyr Phe Lys Gly Met Phe Ala

65 70 75 80

ggg gga ttg aag gag atg gaa cag gaa gag gtc ctg atc cac ggt gtg 407

Gly Gly Leu Lys Glu Met Glu Gln Glu Glu Val Leu Ile His Gly Val

81 86 91 96

tcc tac aat gct atg tgc caa atc cta cat ttc ata tac acc tcc gag 455

Ser Tyr Asn Ala Met Cys Gln Ile Leu His Phe Ile Tyr Thr Ser Glu

97 102 107 112

ctg gag ctc agc ctg agc aat gta caa gag aca ctg gtg gct gcc tgc 503

Leu Glu Leu Ser Leu Ser Asn Val Gln Glu Thr Leu Val Ala Ala Cys

113 118 123 128

cag ctt cag atc cca gaa att atc cat ttc tgc tgt gat ttc ctc atg	551
Gln Leu Gln Ile Pro Glu Ile Ile His Phe Cys Cys Asp Phe Leu Met	
129 134 139 144	
tcc tgg gtg gac gaa gag aac att ctc gat gtc tac cgg ctg gca gag	599
Ser Trp Val Asp Glu Glu Asn Ile Leu Asp Val Tyr Arg Leu Ala Glu	
145 150 155 160	
ctg ttt gac ttg agc cgc ctg act gag caa ctg gac acc tat atc ctc	647
Leu Phe Asp Leu Ser Arg Leu Thr Glu Gln Leu Asp Thr Tyr Ile Leu	
161 166 171 176	
aaa aac ttt gtg gcc ttc tct cgg act gac aag tac cgc cag ctt cca	695
Lys Asn Phe Val Ala Phe Ser Arg Thr Asp Lys Tyr Arg Gln Leu Pro	
177 182 187 192	
ttg gag aag gtc tac tcc ctc ctc agc agc aat cgc ctg gag gtc tcc	743
Leu Glu Lys Val Tyr Ser Leu Leu Ser Ser Asn Arg Leu Glu Val Ser	
193 198 203 208	
tgc gag acc gag gta tat gag ggg gcc ctt ctc tac cat tat agc ctg	791
Cys Glu Thr Glu Val Tyr Glu Gly Ala Leu Leu Tyr His Tyr Ser Leu	
209 214 219 224	
gag cag gtg cag gct gac cag atc tcg ctg cac gag ccc cca aag ctc	839
Glu Gln Val Gln Ala Asp Gln Ile Ser Leu His Glu Pro Pro Lys Leu	
225 230 235 240	
ctt gag aca gtg cgg ttt ccg ctg atg gaa gct gag gtc ctg cag cgg	887
Leu Glu Thr Val Arg Phe Pro Leu Met Glu Ala Glu Val Leu Gln Arg	
241 246 251 256	
ctg cat gac aag ctg gac ccc agc cct ttg agg gac aca gtg gcc agc	935
Leu His Asp Lys Leu Asp Pro Ser Pro Leu Arg Asp Thr Val Ala Ser	
257 262 267 272	
gcc ctc atg tac cac cgg aac gag agc cta cag ccc agc ctg cag agc	983
Ala Leu Met Tyr His Arg Asn Glu Ser Leu Gln Pro Ser Leu Gln Ser	
273 278 283 288	
ccg caa acg gag ctg cgg tcg gac ttc cag tgc gtt gtg ggc ttc ggg	1031
Pro Gln Thr Glu Leu Arg Ser Asp Phe Gln Cys Val Val Gly Phe Gly	
289 294 299 304	
ggc att cac tcc acg ccg tcc act gtc ctc agc gac cag gcc aag tat	1079
Gly Ile His Ser Thr Pro Ser Thr Val Leu Ser Asp Gln Ala Lys Tyr	
305 310 315 320	
cta aac ccc tta ctg gga gag tgg aag cac ttc act gcc tcc ctg gcc	1127
Leu Asn Pro Leu Leu Gly Glu Trp Lys His Phe Thr Ala Ser Leu Ala	
321 326 331 336	
ccc cgc atg tcc aac cag ggc atc gcg gtg ctc aac aac ttc gta tac	1175
Pro Arg Met Ser Asn Gln Gly Ile Ala Val Leu Asn Asn Phe Val Tyr	
337 342 347 352	
ttg att gga ggg gac aac aat gtc caa gga ttt cga gca gag tcc cga	1223

Leu Ile Gly Gly Asp Asn Asn Val Gln Gly Phe Arg Ala Glu Ser Arg	
353 358 363 368	
tgc tgg agg tat gac cca cgg cac aac cgc tgg ttc cag atc cag tcc	1271
Cys Trp Arg Tyr Asp Pro Arg His Asn Arg Trp Phe Gln Ile Gln Ser	
369 374 379 384	
ctg cag cag gag cac gcc gac ctg tcc gtg tgt gtt gta ggc agg tac	1319
Leu Gln Gln Glu His Ala Asp Leu Ser Val Cys Val Val Gly Arg Tyr	
385 390 395 400	
atc tac gct gtg gcg ggc cgt gac tac cac aat gac ctg aat gct gtg	1367
Ile Tyr Ala Val Ala Gly Arg Asp Tyr His Asn Asp Leu Asn Ala Val	
401 406 411 416	
gag cgc tac gac cct gcc acc aac tcc tgg gca tac gtg gcc cca ctc	1415
Glu Arg Tyr Asp Pro Ala Thr Asn Ser Trp Ala Tyr Val Ala Pro Leu	
417 422 427 432	
aag agg gag gtg tat gcc cac gca ggc gcg acg ctg gag ggg aag atg	1463
Lys Arg Glu Val Tyr Ala His Ala Gly Ala Thr Leu Glu Gly Lys Met	
433 438 443 448	
tat atc acc tgc ggc cgc aga ggg gag gat tac ctg aaa gag aca cac	1511
Tyr Ile Thr Cys Gly Arg Arg Gly Glu Asp Tyr Leu Lys Glu Thr His	
449 454 459 464	
tgc tac gat cca ggc agc aac act tgg cac aca ctg gct gat ggg cct	1559
Cys Tyr Asp Pro Gly Ser Asn Thr Trp His Thr Leu Ala Asp Gly Pro	
465 470 475 480	
gtg cgg cgc gcc tgg cac ggc atg gca acc ctc ctc aac aag ctg tat	1607
Val Arg Arg Ala Trp His Gly Met Ala Thr Leu Leu Asn Lys Leu Tyr	
481 486 491 496	
gtg atc ggg ggc agc aac aac gat gcc gga tac agg agg gac gtg cac	1655
Val Ile Gly Gly Ser Asn Asn Asp Ala Gly Tyr Arg Arg Asp Val His	
497 502 507 512	
cag gtg gcc tgc tac agc tgc acg tct gga cag tgg tca tct gtc tgc	1703
Gln Val Ala Cys Tyr Ser Cys Thr Ser Gly Gln Trp Ser Ser Val Cys	
513 518 523 528	
cca ctc cct gct ggg cac ggt gag cct ggc att gct gtg ctg gac aac	1751
Pro Leu Pro Ala Gly His Gly Glu Pro Gly Ile Ala Val Leu Asp Asn	
529 534 539 544	
agg atc tat gtg tta ggt ggc cgc tca cac aac cgc ggc agc cgc aca	1799
Arg Ile Tyr Val Leu Gly Gly Arg Ser His Asn Arg Gly Ser Arg Thr	
545 550 555 560	
ggc tac gtg cac att tac gat gtg gag aag gac tgc tgg gag gaa ggg	1847
Gly Tyr Val His Ile Tyr Asp Val Glu Lys Asp Cys Trp Glu Glu Gly	
561 566 571 576	
ccc cag ctg gac aac tcc atc tca ggc ctg gcg gcc tgt gtg ctc acc	1895
Pro Gln Leu Asp Asn Ser Ile Ser Gly Leu Ala Ala Cys Val Leu Thr	

577	582	587	592	
ctg ccc cgc tcc ctg ctc ctt gag ccg ccc cgc ggg acc cct gac cgc				1943
Leu Pro Arg Ser Leu Leu Leu Glu Pro Pro Arg Gly Thr Pro Asp Arg				
593	598	603	608	
agc cag gcc gac ccg gac ttt gcc tct gag gtg atg agt gtg tct gac				1991
Ser Gln Ala Asp Pro Asp Phe Ala Ser Glu Val Met Ser Val Ser Asp				
609	614	619	624	
tgg gag gag ttt gac aac tcc agt gag gac tag gctccctg tgcctggcat				2042
Trp Glu Glu Phe Asp Asn Ser Ser Glu Asp *				
625	630	635		
cagaggggaag ggaggctggg gctgcagggc agtgaaaccc acgcagccta ggccagagca				2102
ctttactcca ggcagggccc ctgccctgt tggccacagc ttatgggccc tgcctctttt				2162
cttcacacca gccccttggc cagcctgccg caggcatctc agggccatgc agatcccagg				2222
ctgtggatta cgtcactgca ggaactgctt ctgaaaggct ttggccttcc tcagtgagcc				2282
ctggaggggt tggccttctc tcctccctgc ctagatcagt ccttctccaa aaggacctgg				2342
gagctggcag cctgggcagg ggggctgagg cacgtggtag ccctctttct gtgaatgggg				2402
tggggctgtg ggggcagctg ggggtggagg atgagagctc ctgaggggca gaggagcaga				2462
gatgcacag ctcgcctggg actggctctg tgataaaaag acccctcccg ctgggttttc				2522
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atg ccg ctg gag ctg gag tgt ccc ggg cgc tgg gtg ggc ggg caa	166
Met Pro Leu Glu Leu Glu Cys Pro Gly Arg Trp Val Gly Gly Gln	
1 5 10 15	
cac ccg tgc ttc atc att gcc gag atc ggc cag aac cac cag ggc gac	214
His Pro Cys Phe Ile Ile Ala Glu Ile Gly Gln Asn His Gln Gly Asp	
17 22 27 32	
ctg gac gta gcc aag cgc atg atc cgc atg gcc aag gag tgt ggg gct	262

Leu	Asp	Val	Ala	Lys	Arg	Met	Ile	Arg	Met	Ala	Lys	Glu	Cys	Gly	Ala		
33					38					43					48		
gat	tgt	gcc	aag	ttc	cag	aag	agt	gag	cta	gaa	ttc	aag	ttt	aat	cgg	310	
Asp	Cys	Ala	Lys	Phe	Gln	Lys	Ser	Glu	Leu	Glu	Phe	Lys	Phe	Asn	Arg		
49					54					59					64		
aaa	gcc	ttg	gac	agg	cca	tac	acc	tcg	aag	cat	tcc	tgg	ggg	aag	acg	358	
Lys	Ala	Leu	Asp	Arg	Pro	Tyr	Thr	Ser	Lys	His	Ser	Trp	Gly	Lys	Thr		
65					70					75					80		
tac	ggg	gag	cac	aaa	cga	cat	ctg	gag	ttc	agc	cat	gac	cag	tac	agg	406	
Tyr	Gly	Glu	His	Lys	Arg	His	Leu	Glu	Phe	Ser	His	Asp	Gln	Tyr	Arg		
81					86					91					96		
gag	ctg	cag	agg	tac	gcc	gag	gag	gtt	ggg	atc	ttc	ttc	act	gcc	tct	454	
Glu	Leu	Gln	Arg	Tyr	Ala	Glu	Glu	Val	Gly	Ile	Phe	Phe	Thr	Ala	Ser		
97					102					107					112		
ggc	atg	gat	gag	atg	gca	gtt	gaa	ttc	ctg	cat	gaa	ctg	aat	gtt	cca	502	
Gly	Met	Asp	Glu	Met	Ala	Val	Glu	Phe	Leu	His	Glu	Leu	Asn	Val	Pro		
113					118					123					128		
ttt	ttc	aaa	gtt	gga	tct	gga	gac	act	aat	aat	ttt	cct	tat	ctg	gaa	550	
Phe	Phe	Lys	Val	Gly	Ser	Gly	Asp	Thr	Asn	Asn	Phe	Pro	Tyr	Leu	Glu		
129					134					139					144		
aag	aca	gcc	aaa	aaa	ggt	cgc	cca	atg	gtg	atc	tcc	agt	ggg	atg	cag	598	
Lys	Thr	Ala	Lys	Lys	Gly	Arg	Pro	Met	Val	Ile	Ser	Ser	Gly	Met	Gln		
145					150					155					160		
tca	atg	gac	acc	atg	aag	caa	gtt	tat	cag	atc	gtg	aag	ccc	ctc	aac	646	
Ser	Met	Asp	Thr	Met	Lys	Gln	Val	Tyr	Gln	Ile	Val	Lys	Pro	Leu	Asn		
161					166					171					176		
ccc	aac	ttc	tgc	ttc	ttg	cag	tgt	acc	agc	gca	tac	ccg	ctc	cag	cct	694	
Pro	Asn	Phe	Cys	Phe	Leu	Gln	Cys	Thr	Ser	Ala	Tyr	Pro	Leu	Gln	Pro		
177					182					187					192		
gag	gac	gtc	aac	ctg	cgg	gtc	atc	tcg	gaa	tat	cag	aag	ctc	ttt	cct	742	
Glu	Asp	Val	Asn	Leu	Arg	Val	Ile	Ser	Glu	Tyr	Gln	Lys	Leu	Phe	Pro		
193					198					203					208		
gac	att	ccc	ata	ggg	tat	tct	ggg	cat	gaa	aca	ggc	ata	gcg	ata	tct	790	
Asp	Ile	Pro	Ile	Gly	Tyr	Ser	Gly	His	Glu	Thr	Gly	Ile	Ala	Ile	Ser		
209					214					219					224		
gtg	gcc	gca	gtg	gct	ctg	ggg	gcc	aag	gtg	ttg	gaa	cgt	cac	ata	act	838	
Val	Ala	Ala	Val	Ala	Leu	Gly	Ala	Lys	Val	Leu	Glu	Arg	His	Ile	Thr		
225					230					235					240		
ttg	gac	aag	acc	tgg	aag	ggg	agt	gac	cac	tcg	gcc	tcg	ctg	gag	cct	886	
Leu	Asp	Lys	Thr	Trp	Lys	Gly	Ser	Asp	His	Ser	Ala	Ser	Leu	Glu	Pro		
241					246					251					256		
gga	gaa	ctg	gcc	gag	ctg	gtg	cgg	tca	gtg	cgt	ctt	gtg	gag	cgt	gcc	934	
Gly	Glu	Leu	Ala	Glu	Leu	Val	Arg	Ser	Val	Arg	Leu	Val	Glu	Arg	Ala		

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ctg ggc tcc cca acc aag cag ctg ctg ccc tgt gag atg gcc tgc aat      982
Leu Gly Ser Pro Thr Lys Gln Leu Leu Pro Cys Glu Met Ala Cys Asn
273                278                283                288

gag aag ctg ggc aag tct gtg gtg gcc aaa gtg aaa att ccg gaa ggc      1030
Glu Lys Leu Gly Lys Ser Val Val Ala Lys Val Lys Ile Pro Glu Gly
289                294                299                304

acc att cta aca atg gac atg ctc acc gtg aag gtg ggt gag ccc aaa      1078
Thr Ile Leu Thr Met Asp Met Leu Thr Val Lys Val Gly Glu Pro Lys
305                310                315                320

ggc tat cct cct gaa gac atc ttt aat cta gtg ggc aag aag gtc ctg      1126
Gly Tyr Pro Pro Glu Asp Ile Phe Asn Leu Val Gly Lys Lys Val Leu
321                326                331                336

gtc act gtt gaa gag gat gac acc atc atg gaa gaa ttg gta gat aat      1174
Val Thr Val Glu Glu Asp Asp Thr Ile Met Glu Glu Leu Val Asp Asn
337                342                347                352

cat ggc aaa aaa atc aag tct taa aaataaagtg ccattctctg aaaaaaaaaa      1228
His Gly Lys Lys Ile Lys Ser *
353                358

aa                                                                    1230

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gcgcgacccc tcccgcagcg acggcgcccc gggaccgcgc ggctgtgaac c atg aac      177
Met Asn
1

acc cgc aat aga gtg gtg aac tcc ggg ctc ggc gcc tcc cct gcc tcc      225
Thr Arg Asn Arg Val Val Asn Ser Gly Leu Gly Ala Ser Pro Ala Ser
3                8                13                18

cgc ccg acc cgg gat ccc cag gac cct tct ggg cgg caa ggg gag ctg      273
Arg Pro Thr Arg Asp Pro Gln Asp Pro Ser Gly Arg Gln Gly Glu Leu
19                24                29                34

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agc ccc gtg gaa gac cag aga gag ggt ttg gag gca gcc oct aag ggc	321
Ser Pro Val Glu Asp Gln Arg Glu Gly Leu Glu Ala Ala Pro Lys Gly	
35 40 45 50	
cct tcg cgg gag agc gtc gtg cac gcg ggc cag agg cgc aca agt gca	369
Pro Ser Arg Glu Ser Val Val His Ala Gly Gln Arg Arg Thr Ser Ala	
51 56 61 66	
tac acc ttg ata gca cca aat ata aac cgg aga aat gag ata caa aga	417
Tyr Thr Leu Ile Ala Pro Asn Ile Asn Arg Arg Asn Glu Ile Gln Arg	
67 72 77 82	
att gcg gag cag gag ctg gcc aac ctg gag aag tgg aag gag cag aac	465
Ile Ala Glu Gln Glu Leu Ala Asn Leu Glu Lys Trp Lys Glu Gln Asn	
83 88 93 98	
aga gct aaa ccg gtt cac ctg gtg ccc aga cgg cta ggt gga agc cag	513
Arg Ala Lys Pro Val His Leu Val Pro Arg Arg Leu Gly Gly Ser Gln	
99 104 109 114	
tca gaa act gaa gtc aga cag aaa caa caa ctc cag ctg atg caa tct	561
Ser Glu Thr Glu Val Arg Gln Lys Gln Gln Leu Gln Leu Met Gln Ser	
115 120 125 130	
aaa tac aag caa aag cta aaa aga gaa gaa tct gta aga atc aag aag	609
Lys Tyr Lys Gln Lys Leu Lys Arg Glu Glu Ser Val Arg Ile Lys Lys	
131 136 141 146	
gaa gct gaa gaa gct gaa ctc caa aaa atg aag gca att cag aga gag	657
Glu Ala Glu Glu Ala Glu Leu Gln Lys Met Lys Ala Ile Gln Arg Glu	
147 152 157 162	
aag agc aat aaa ctg gag gag aaa aaa aga ctt caa gaa aac ctt aga	705
Lys Ser Asn Lys Leu Glu Glu Lys Lys Arg Leu Gln Glu Asn Leu Arg	
163 168 173 178	
aga gaa gca ttt aga gag cat cag caa tac aaa acc gct gag ttc ttg	753
Arg Glu Ala Phe Arg Glu His Gln Gln Tyr Lys Thr Ala Glu Phe Leu	
179 184 189 194	
agc aaa ctg aac aca gaa tcg cca gac aga agt gcc tgt caa agt gct	801
Ser Lys Leu Asn Thr Glu Ser Pro Asp Arg Ser Ala Cys Gln Ser Ala	
195 200 205 210	
gtt tgt ggc cca caa tcc tca aca tgg gcc aga agc tgg gct tac aga	849
Val Cys Gly Pro Gln Ser Ser Thr Trp Ala Arg Ser Trp Ala Tyr Arg	
211 216 221 226	
gat tct cta aag gca gaa gaa aac aga aaa ttg caa aag atg aag gat	897
Asp Ser Leu Lys Ala Glu Glu Asn Arg Lys Leu Gln Lys Met Lys Asp	
227 232 237 242	
gaa caa cat caa aag agt gaa tta ctg gaa ctg aaa cgg cag cag caa	945
Glu Gln His Gln Lys Ser Glu Leu Leu Glu Leu Lys Arg Gln Gln Gln	
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aacctctttc acgagctata aaagaaaggg aggaatc atg tcc aca att gca gct 175  
Met Ser Thr Ile Ala Ala

1

ttc tat ggc ggc aag tcc att ctc atc acg ggg gcc aca ggc ttt ctg 223  
Phe Tyr Gly Gly Lys Ser Ile Leu Ile Thr Gly Ala Thr Gly Phe Leu  
7 12 17 22

ggc aaa gtg cta atg gag aag ctg ttt cgc acc agc cca gac ctg aaa 271  
Gly Lys Val Leu Met Glu Lys Leu Phe Arg Thr Ser Pro Asp Leu Lys  
23 28 33 38

gtc att tac atc ctt gtg agg ccc aag gct ggc cag aca ctg cag cag 319  
Val Ile Tyr Ile Leu Val Arg Pro Lys Ala Gly Gln Thr Leu Gln Gln  
39 44 49 54

agg gtt ttc cag atc cta gac agt aag cta ttt gag aaa gtc aaa gaa 367  
Arg Val Phe Gln Ile Leu Asp Ser Lys Leu Phe Glu Lys Val Lys Glu  
55 60 65 70

gtt tgt cca aat gtg cat gag aag atc aga gct att tat gca gat ctc 415  
Val Cys Pro Asn Val His Glu Lys Ile Arg Ala Ile Tyr Ala Asp Leu  
71 76 81 86

aat cag aat gac ttt gcc atc agc aaa gag gac atg cag gag ctt ctc 463  
Asn Gln Asn Asp Phe Ala Ile Ser Lys Glu Asp Met Gln Glu Leu Leu  
87 92 97 102

tcc tgt aca aac ata ata ttt cac tgt gca gcc act gta cgc ttt gac 511  
Ser Cys Thr Asn Ile Ile Phe His Cys Ala Ala Thr Val Arg Phe Asp  
103 108 113 118

gac act ctc aga cat gct gtg caa ctt aac gtc act gcc acc cgg cag 559  
Asp Thr Leu Arg His Ala Val Gln Leu Asn Val Thr Ala Thr Arg Gln  
119 124 129 134

ctc ttg ctt atg gct agt cag atg cca aag ctg gaa gcc ttt ata cat 607  
Leu Leu Leu Met Ala Ser Gln Met Pro Lys Leu Glu Ala Phe Ile His  
135 140 145 150

atc tct act gcc tat tca aat tgt aac ctg aag cac atc gat gaa gtt 655  
Ile Ser Thr Ala Tyr Ser Asn Cys Asn Leu Lys His Ile Asp Glu Val  
151 156 161 166

atc tat ccg tgc cct gtg gag cca aaa aaa atc att gat tcc ctt gag 703  
Ile Tyr Pro Cys Pro Val Glu Pro Lys Lys Ile Ile Asp Ser Leu Glu  
167 172 177 182

tgg tta gac gat gct att att gac gag att aca ccc aag ctg atc aga	751
Trp Leu Asp Asp Ala Ile Ile Asp Glu Ile Thr Pro Lys Leu Ile Arg	
183 188 193 198	
gat tgg ccc aat att tat acc tac acc aag gcc ttg gga gaa atg gtg	799
Asp Trp Pro Asn Ile Tyr Thr Tyr Thr Lys Ala Leu Gly Glu Met Val	
199 204 209 214	
gtg cag cac gag agc agg atc ctg aac att gcc atc ata agg ccc tcc	847
Val Gln His Glu Ser Arg Ile Leu Asn Ile Ala Ile Ile Arg Pro Ser	
215 220 225 230	
att gtg gga gca act tgg cag gag cct ttc cca ggt tgg gtt gat aat	895
Ile Val Gly Ala Thr Trp Gln Glu Pro Phe Pro Gly Trp Val Asp Asn	
231 236 241 246	
ata aat gga cct aat gga atc att att gcg act ggg aaa ggg ttt ctt	943
Ile Asn Gly Pro Asn Gly Ile Ile Ile Ala Thr Gly Lys Gly Phe Leu	
247 252 257 262	
cgg gcc ata aaa gct act cca atg gct gtg gca gac gta att cca gtt	991
Arg Ala Ile Lys Ala Thr Pro Met Ala Val Ala Asp Val Ile Pro Val	
263 268 273 278	
gat aca gtc gtc aat ctc atg cta gct gta gga tgg tat act gca gtt	1039
Asp Thr Val Val Asn Leu Met Leu Ala Val Gly Trp Tyr Thr Ala Val	
279 284 289 294	
cac aga cct aag tca aca tta gtc tac cac att aca tct ggt aac atg	1087
His Arg Pro Lys Ser Thr Leu Val Tyr His Ile Thr Ser Gly Asn Met	
295 300 305 310	
aat ccc tgc aat tgg cac aaa atg gga gtc caa gtc ttg gca acc ttt	1135
Asn Pro Cys Asn Trp His Lys Met Gly Val Gln Val Leu Ala Thr Phe	
311 316 321 326	
gaa aaa atc cca ttt gag aga cct ttc agg agg cca aat gct aat ttt	1183
Glu Lys Ile Pro Phe Glu Arg Pro Phe Arg Arg Pro Asn Ala Asn Phe	
327 332 337 342	
acc agc aac agc ttc aca tca cag tac tgg aat gcg gtc agc cac cgg	1231
Thr Ser Asn Ser Phe Thr Ser Gln Tyr Trp Asn Ala Val Ser His Arg	
343 348 353 358	
gcc cct gcc att atc tat gac tgc tat ctg cgg ctc act gga agg aag	1279
Ala Pro Ala Ile Ile Tyr Asp Cys Tyr Leu Arg Leu Thr Gly Arg Lys	
359 364 369 374	
ccc agg atg aca aag ctc atg aat cgg ctt tta aga act gtt tcc atg	1327
Pro Arg Met Thr Lys Leu Met Asn Arg Leu Leu Arg Thr Val Ser Met	
375 380 385 390	
ttg gag tat ttc atc aac cgg agt tgg gaa tgg agc acg tac aat aca	1375
Leu Glu Tyr Phe Ile Asn Arg Ser Trp Glu Trp Ser Thr Tyr Asn Thr	
391 396 401 406	
gaa atg ctg atg tct gag ctg agt cct gaa gac cag aga gta ttc aac	1423

Glu Met Leu Met Ser Glu Leu Ser Pro Glu Asp Gln Arg Val Phe Asn	
407	412 417 422
ttt gac gtg cgc cag ttg aac tgg ttg gaa tac att gaa aat tat gtt	1471
Phe Asp Val Arg Gln Leu Asn Trp Leu Glu Tyr Ile Glu Asn Tyr Val	
423	428 433 438
ttg gga gtt aaa aaa tac tta ttg aaa gag gat atg gct ggg atc cca	1519
Leu Gly Val Lys Lys Tyr Leu Leu Lys Glu Asp Met Ala Gly Ile Pro	
439	444 449 454
aaa gca aag caa cgc tta aaa agg ctc cga aat att cac tac ctc ttt	1567
Lys Ala Lys Gln Arg Leu Lys Arg Leu Arg Asn Ile His Tyr Leu Phe	
455	460 465 470
aat act gcc ctc ttc ctt atc gcc tgg cgc ctt ctc att gca aga tct	1615
Asn Thr Ala Leu Phe Leu Ile Ala Trp Arg Leu Leu Ile Ala Arg Ser	
471	476 481 486
cag atg gct cgg aat gtc tgg ttc ttc att gta agc ttc tgt tat aaa	1663
Gln Met Ala Arg Asn Val Trp Phe Phe Ile Val Ser Phe Cys Tyr Lys	
487	492 497 502
ttc ctc tcc tac ttt aga gca tcc agg cac ggt tca aag ttt aag agc	1711
Phe Leu Ser Tyr Phe Arg Ala Ser Arg His Gly Ser Lys Phe Lys Ser	
503	508 513 518
att tag gccatgcgct tttatctgga acctctcaga tacctctaaa acagcaaact	1767
Ile *	
519	
gtgattctca agattagaaa gtaacaagga atatgcccaa actgtcaaat gtcacctgtt	1827
atgtattcgt ccctattcct taactatgta tttttatttc agtgagagaa ggaaagtgt	1887
aaactagccc atagtcacct atatttttagg gaaaaaaatc caaattgttt cctaaccattc	1947
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Met  
1

ggt gtg aaa aca ttt act cat agc tcc tct tcc cac agc cag gaa atg Gly Val Lys Thr Phe Thr His Ser Ser Ser Ser His Ser Gln Glu Met 2 7 12 17	165
ctt gga aag cta aat atg ctg cga aat gat gga cat ttt tgt gat atc Leu Gly Lys Leu Asn Met Leu Arg Asn Asp Gly His Phe Cys Asp Ile 18 23 28 33	213
act att cgt gtc cag gac aaa atc ttc cgg gca cat aag gtg gta cta Thr Ile Arg Val Gln Asp Lys Ile Phe Arg Ala His Lys Val Val Leu 34 39 44 49	261
gca gct tgc agt gat ttc ttt cgc acc aaa ctt gta ggc caa gcc gag Ala Ala Cys Ser Asp Phe Phe Arg Thr Lys Leu Val Gly Gln Ala Glu 50 55 60 65	309
gat gag aac aag aat gtg ttg gat ctg cat cat gtt aca gtg act ggc Asp Glu Asn Lys Asn Val Leu Asp Leu His His Val Thr Val Thr Gly 66 71 76 81	357
ttt ata cct ctt tta gaa tat gct tac aca gcc act cta tca att aac Phe Ile Pro Leu Leu Glu Tyr Ala Tyr Thr Ala Thr Leu Ser Ile Asn 82 87 92 97	405
aca gaa aat att att gat gtt cta gca gca gcc agc tat atg caa atg Thr Glu Asn Ile Ile Asp Val Leu Ala Ala Ala Ser Tyr Met Gln Met 98 103 108 113	453
ttc agt gtt gcc agc acc tgc tca gag ttc atg aaa tca agc att tta Phe Ser Val Ala Ser Thr Cys Ser Glu Phe Met Lys Ser Ser Ile Leu 114 119 124 129	501
tgg aat aca ccc aac agc caa cct gaa aag ggt cta gat gct gga caa Trp Asn Thr Pro Asn Ser Gln Pro Glu Lys Gly Leu Asp Ala Gly Gln 130 135 140 145	549
gaa aat aat tct aac tgc aat ttt act tct cga gat ggg agc att tct Glu Asn Asn Ser Asn Cys Asn Phe Thr Ser Arg Asp Gly Ser Ile Ser 146 151 156 161	597
ccc gtg tcc tca gag tgc aga gtg gta gaa aga acc att cct gtc tgc Pro Val Ser Ser Glu Cys Arg Val Val Glu Arg Thr Ile Pro Val Cys 162 167 172 177	645
cga gaa tcc cgg aga aag cgc aaa agc tac att gtt atg tct cct gaa Arg Glu Ser Arg Arg Lys Arg Lys Ser Tyr Ile Val Met Ser Pro Glu 178 183 188 193	693
agt cct gta aag tgt ggc aca caa aca agc tca ccc cag gta ttg aat Ser Pro Val Lys Cys Gly Thr Gln Thr Ser Ser Pro Gln Val Leu Asn 194 199 204 209	741
tct tca gct tcc tac tca gaa aat aga aac caa cca gtt gac tct tcc Ser Ser Ala Ser Tyr Ser Glu Asn Arg Asn Gln Pro Val Asp Ser Ser 789	

210	215	220	225	
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Leu Ala Phe Pro Trp Thr Phe Pro Phe Gly Ile Asp Arg Arg Ile Gln				
226	231	236	241	
cct gag aaa gtt aag caa gca gaa aat acc cgg act tta gaa tta cct				885
Pro Glu Lys Val Lys Gln Ala Glu Asn Thr Arg Thr Leu Glu Leu Pro				
242	247	252	257	
ggc cca tct gag acc ggt aga aga atg gct gat tat gtg act tgt gag				933
Gly Pro Ser Glu Thr Gly Arg Arg Met Ala Asp Tyr Val Thr Cys Glu				
258	263	268	273	
agc aca aaa act acc ttg cct tta ggt acc gaa gaa gat gtc cgg gtc				981
Ser Thr Lys Thr Thr Leu Pro Leu Gly Thr Glu Glu Asp Val Arg Val				
274	279	284	289	
aaa gta gaa aga tta agt gat gag gag gtc cat gag gaa gtg tcc cag				1029
Lys Val Glu Arg Leu Ser Asp Glu Glu Val His Glu Glu Val Ser Gln				
290	295	300	305	
cct gtc agt gca tct cag agt tcg ctg agt gat cag cag aca gtt cca				1077
Pro Val Ser Ala Ser Gln Ser Ser Leu Ser Asp Gln Gln Thr Val Pro				
306	311	316	321	
gga agt gaa caa gtc caa gag gac ctt ctg att agt cca cag tct tcc				1125
Gly Ser Glu Gln Val Gln Glu Asp Leu Leu Ile Ser Pro Gln Ser Ser				
322	327	332	337	
tct ata ggc tca gta gat gaa ggc gtt tct gag ggc ttg cct aca ctt				1173
Ser Ile Gly Ser Val Asp Glu Gly Val Ser Glu Gly Leu Pro Thr Leu				
338	343	348	353	
caa agc acg tct agc act aat gct cct ccg gat gat gat gat cgg tca				1221
Gln Ser Thr Ser Ser Thr Asn Ala Pro Pro Asp Asp Asp Asp Arg Ser				
354	359	364	369	
gta cta aca tag cat ttcgttacct cttaaggggt gtgtttacaa ctccaaattc				1276
Val Leu Thr *				
370				
aagcatttca tctcaagagt tgtagaagtt tattacaacc tcacttcagt atacttttca				1336
aagtaatgaa gtagcatcat cacattataa attagagtag ctatacaagg cttttttttt				1396
tccccagcat ttccaaaact acctagtccc attgctttta atcgtatctg taccaagtgt				1456
tggaacta tgaaccacag gccaatcca gcctaccacc tttatttgta aatcaagtat				1516
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gttgaaacag actgtatggt gtgcaaagtc agaattgtgt ctgtacggac tgctgtgaaa				1636
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 cgaa atg agc cag ggg cgt gga aaa tat gac ttc tat att ggt ctg gga 349  
 Met Ser Gln Gly Arg Gly Lys Tyr Asp Phe Tyr Ile Gly Leu Gly  
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 Leu Ala Met Ser Ser Ser Ile Phe Ile Gly Gly Ser Phe Ile Leu Lys  
 16 21 26 31  
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 Lys Lys Gly Leu Leu Arg Leu Ala Arg Lys Gly Ser Met Arg Ala Gly  
 32 37 42 47  
 caa ggt ggc cat gca tat ctt aag gaa tgg ttg tgg tgg gct gga ctg 493  
 Gln Gly Gly His Ala Tyr Leu Lys Glu Trp Leu Trp Trp Ala Gly Leu  
 48 53 58 63  
 ctg tca atg gga gct ggt gag gtg gcc aac ttc gct gcg tat gcg ttt 541

Leu	Ser	Met	Gly	Ala	Gly	Glu	Val	Ala	Asn	Phe	Ala	Ala	Tyr	Ala	Phe	
64					69					74					79	
gca	cca	gcc	act	cta	gtg	act	cca	cta	gga	gct	ctc	agc	gtg	cta	gta	589
Ala	Pro	Ala	Thr	Leu	Val	Thr	Pro	Leu	Gly	Ala	Leu	Ser	Val	Leu	Val	
80					85				90						95	
agt	gcc	att	ctt	tct	tca	tac	ttt	ctc	aat	gaa	aga	ctt	aat	ctt	cat	637
Ser	Ala	Ile	Leu	Ser	Ser	Tyr	Phe	Leu	Asn	Glu	Arg	Leu	Asn	Leu	His	
96					101				106						111	
ggg	aaa	att	ggg	tgt	ttg	cta	agt	att	cta	gga	tct	aca	gtt	atg	gtc	685
Gly	Lys	Ile	Gly	Cys	Leu	Leu	Ser	Ile	Leu	Gly	Ser	Thr	Val	Met	Val	
112					117				122						127	
att	cat	gct	cca	aag	gaa	gag	gag	att	gag	act	tta	aat	gaa	atg	tct	733
Ile	His	Ala	Pro	Lys	Glu	Glu	Glu	Ile	Glu	Thr	Leu	Asn	Glu	Met	Ser	
128					133				138						143	
cac	aag	cta	ggg	gat	cca	ggg	ttt	gtg	gtc	ttt	gca	acc	ctt	gtg	gtc	781
His	Lys	Leu	Gly	Asp	Pro	Gly	Phe	Val	Val	Phe	Ala	Thr	Leu	Val	Val	
144					149				154						159	
att	gtg	gcc	ttg	ata	tta	atc	ttc	gtg	gtg	ggg	cct	cgc	cat	gga	cag	829
Ile	Val	Ala	Leu	Ile	Leu	Ile	Phe	Val	Val	Gly	Pro	Arg	His	Gly	Gln	
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aca	aac	att	ctt	gtg	tac	ata	aca	atc	tgc	tct	gta	atc	ggc	gcg	ttt	877
Thr	Asn	Ile	Leu	Val	Tyr	Ile	Thr	Ile	Cys	Ser	Val	Ile	Gly	Ala	Phe	
176					181				186						191	
tca	gtc	tcc	tgt	gtg	aag	ggc	ctg	ggc	att	gct	atc	aag	gag	ctg	ttt	925
Ser	Val	Ser	Cys	Val	Lys	Gly	Leu	Gly	Ile	Ala	Ile	Lys	Glu	Leu	Phe	
192					197				202						207	
gca	ggg	aag	cct	gtg	ctg	cgg	cat	ccc	ctg	gct	tgg	att	ctg	ctg	ctg	973
Ala	Gly	Lys	Pro	Val	Leu	Arg	His	Pro	Leu	Ala	Trp	Ile	Leu	Leu	Leu	
208					213				218						223	
agc	ctc	atc	gtc	tgt	gtg	agc	aca	cag	att	aat	tac	cta	aat	agg	gcc	1021
Ser	Leu	Ile	Val	Cys	Val	Ser	Thr	Gln	Ile	Asn	Tyr	Leu	Asn	Arg	Ala	
224					229				234						239	
ctg	gat	ata	ttc	aac	act	tcc	att	gtg	act	cca	ata	tat	tat	gta	ttc	1069
Leu	Asp	Ile	Phe	Asn	Thr	Ser	Ile	Val	Thr	Pro	Ile	Tyr	Tyr	Val	Phe	
240					245				250						255	
ttt	aca	aca	tca	gtt	tta	act	tgt	tca	gct	att	ctt	ttt	aag	gag	tgg	1117
Phe	Thr	Thr	Ser	Val	Leu	Thr	Cys	Ser	Ala	Ile	Leu	Phe	Lys	Glu	Trp	
256					261				266						271	
caa	gat	atg	cct	gtt	gac	gat	gtc	att	ggg	act	ttg	agt	ggc	ttc	ttt	1165
Gln	Asp	Met	Pro	Val	Asp	Asp	Val	Ile	Gly	Thr	Leu	Ser	Gly	Phe	Phe	
272					277				282						287	
aca	atc	att	gtg	ggg	ata	ttc	ttg	ttg	cat	gcc	ttt	aaa	gac	gtc	agc	1213
Thr	Ile	Ile	Val	Gly	Ile	Phe	Leu	Leu	His	Ala	Phe	Lys	Asp	Val	Ser	

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Phe Ser Leu Ala Ser Leu Pro Val Ser Phe	Arg Lys Asp Glu Lys Ala			
304	309	314	319	
atg aat ggc aat ctc tct aat atg tat gaa gtt	ctt aat aat aat gaa			1309
Met Asn Gly Asn Leu Ser Asn Met Tyr Glu Val	Leu Asn Asn Asn Glu			
320	325	330	335	
gaa agc tta acc tgt gga atc gaa caa cac act	ggt gaa aat gtc tcc			1357
Glu Ser Leu Thr Cys Gly Ile Glu Gln His Thr	Gly Glu Asn Val Ser			
336	341	346	351	
cga aga aat gga aat ctg aca gct ttt taa g	aaaggtgtaa ttaaagggtta			1408
Arg Arg Asn Gly Asn Leu Thr Ala Phe *				
352	357			
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cctcaaataa tggtcttttaa aggcaatctt tataaagatt	tcactaatTTT ggaccaagaa			1528
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ggttcctggt cccggagtggt tcggagcccg ccagtgggca ggcagctctt gctcacaggc	180
cgcggtgccc aggccgctgg ctctccgcag ggcgga atg gcg ctg caa gtg gag	234
Met Ala Leu Gln Val Glu	
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ctg gta ccc acc ggg gag atc atc cgc gtg gtt cat ccc cac agg ccc	282
Leu Val Pro Thr Gly Glu Ile Ile Arg Val Val His Pro His Arg Pro	
7 12 17 22	
tgc aag ctt gcc ctg ggc agt gac ggg gtt cgg gtg acc atg gag agt	330
Cys Lys Leu Ala Leu Gly Ser Asp Gly Val Arg Val Thr Met Glu Ser	
23 28 33 38	
gcg ctc acc gcc cgt gac cgg gtg ggg gtg cag gat ttc gtg ctg ctg	378
Ala Leu Thr Ala Arg Asp Arg Val Gly Val Gln Asp Phe Val Leu Leu	
39 44 49 54	
gag aac ttc acc agc gag gcc gcc ttc atc gag aac ctg cgg cgg cga	426
Glu Asn Phe Thr Ser Glu Ala Ala Phe Ile Glu Asn Leu Arg Arg Arg	
55 60 65 70	
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Phe Arg Glu Asn Leu Ile Tyr Thr Tyr Ile Gly Pro Val Leu Val Ser	
71 76 81 86	
gtc aat ccc tac cgg gac ctg cag atc tac agc cgg cag cat atg gag	522
Val Asn Pro Tyr Arg Asp Leu Gln Ile Tyr Ser Arg Gln His Met Glu	
87 92 97 102	
cgt tac cgt ggc gtc agc ttc tat gaa gtg ccc cct cac ctg ttt gcc	570
Arg Tyr Arg Gly Val Ser Phe Tyr Glu Val Pro Pro His Leu Phe Ala	
103 108 113 118	
gtg gcg gac act gtg tac cga gca ctg cgc acg gag cgt cgg gac cag	618
Val Ala Asp Thr Val Tyr Arg Ala Leu Arg Thr Glu Arg Arg Asp Gln	
119 124 129 134	
gct gtg atg atc tct ggg gag agc ggg gca ggc aag acc gag gcc acc	666
Ala Val Met Ile Ser Gly Glu Ser Gly Ala Gly Lys Thr Glu Ala Thr	
135 140 145 150	
aag aag ctg ctg cag ttc tat gca gag acc tgc cca gcc ccc caa cgc	714

Lys	Lys	Leu	Leu	Gln	Phe	Tyr	Ala	Glu	Thr	Cys	Pro	Ala	Pro	Gln	Arg	
151					156					161					166	
gga	ggt	gcc	gtg	cgg	gac	cgg	ctg	cta	cag	agc	aac	ccg	gtg	ctg	gag	762
Gly	Gly	Ala	Val	Arg	Asp	Arg	Leu	Leu	Gln	Ser	Asn	Pro	Val	Leu	Glu	
167					172					177					182	
gcc	ttt	gga	aat	gcc	aag	acc	ctc	cgg	aac	gat	aac	tcc	agc	agg	ttc	810
Ala	Phe	Gly	Asn	Ala	Lys	Thr	Leu	Arg	Asn	Asp	Asn	Ser	Ser	Arg	Phe	
183					188					193					198	
ggg	aag	tac	atg	gat	gtg	cag	ttt	gac	ttc	aag	ggt	gcc	ccc	gtg	ggt	858
Gly	Lys	Tyr	Met	Asp	Val	Gln	Phe	Asp	Phe	Lys	Gly	Ala	Pro	Val	Gly	
199					204					209					214	
ggc	cac	atc	ctc	agt	tac	ctc	ctg	gaa	aag	tca	cga	gtg	gtg	cac	cag	906
Gly	His	Ile	Leu	Ser	Tyr	Leu	Leu	Glu	Lys	Ser	Arg	Val	Val	His	Gln	
215					220					225					230	
aat	cat	ggg	gag	cgg	aac	ttc	cac	atc	ttc	tac	cag	ctg	ctg	gag	ggg	954
Asn	His	Gly	Glu	Arg	Asn	Phe	His	Ile	Phe	Tyr	Gln	Leu	Leu	Glu	Gly	
231					236					241					246	
ggc	gag	gag	gag	act	ctt	cgc	agg	ctg	ggc	ttg	gaa	cgg	aac	ccc	cag	1002
Gly	Glu	Glu	Glu	Thr	Leu	Arg	Arg	Leu	Gly	Leu	Glu	Arg	Asn	Pro	Gln	
247					252					257					262	
agc	tac	ctg	tac	ctg	gtg	aag	ggc	cag	tgt	gcc	aaa	gtc	tcc	tcc	atc	1050
Ser	Tyr	Leu	Tyr	Leu	Val	Lys	Gly	Gln	Cys	Ala	Lys	Val	Ser	Ser	Ile	
263					268					273					278	
aac	gac	aag	agt	gac	tgg	aag	gtc	gtc	agg	aag	gct	ctg	aca	gtc	att	1098
Asn	Asp	Lys	Ser	Asp	Trp	Lys	Val	Val	Arg	Lys	Ala	Leu	Thr	Val	Ile	
279					284					289					294	
gat	ttc	acc	gag	gat	gaa	gtg	gag	gac	ctg	ctg	agc	atc	gtg	gcc	agc	1146
Asp	Phe	Thr	Glu	Asp	Glu	Val	Glu	Asp	Leu	Leu	Ser	Ile	Val	Ala	Ser	
295					300					305					310	
gtc	ctt	cat	ttg	ggc	aac	atc	cac	ttt	gct	gcc	aac	gag	gag	agc	aat	1194
Val	Leu	His	Leu	Gly	Asn	Ile	His	Phe	Ala	Ala	Asn	Glu	Glu	Ser	Asn	
311					316					321					326	
gcc	cag	gtc	acc	acc	gag	aac	cag	ctc	aag	tat	ctg	acc	agg	ctc	ctc	1242
Ala	Gln	Val	Thr	Thr	Glu	Asn	Gln	Leu	Lys	Tyr	Leu	Thr	Arg	Leu	Leu	
327					332					337					342	
agc	gtg	gaa	ggc	tcg	acg	ctg	cga	gaa	gcc	ctg	aca	cac	agg	aag	atc	1290
Ser	Val	Glu	Gly	Ser	Thr	Leu	Arg	Glu	Ala	Leu	Thr	His	Arg	Lys	Ile	
343					348					353					358	
atc	gcc	aag	ggg	gag	gag	ctc	ctg	agc	ccg	ctg	aac	ctg	gag	cag	gcc	1338
Ile	Ala	Lys	Gly	Glu	Glu	Leu	Leu	Ser	Pro	Leu	Asn	Leu	Glu	Gln	Ala	
359					364					369					374	
gcg	tac	gca	cga	gac	gcc	ctc	gcc	aag	gct	gtg	tac	agc	cgc	act	ttt	1386
Ala	Tyr	Ala	Arg	Asp	Ala	Leu	Ala	Lys	Ala	Val	Tyr	Ser	Arg	Thr	Phe	

375	380	385	390	
acc tgg ctc gtc ggg aag atc aac agg tgc ctg gcc tcc aag gac gtg				1434
Thr Trp Leu Val Gly Lys Ile Asn Arg Ser Leu Ala Ser Lys Asp Val				
391	396	401	406	
gag agc ccc agc tgg cgg agc acc acg gtt ctc ggg ctc ctg gat att				1482
Glu Ser Pro Ser Trp Arg Ser Thr Thr Val Leu Gly Leu Leu Asp Ile				
407	412	417	422	
tat ggc ttc gaa gtg ttt cag cat aac agc ttt gag cag ttc tgc atc				1530
Tyr Gly Phe Glu Val Phe Gln His Asn Ser Phe Glu Gln Phe Cys Ile				
423	428	433	438	
aat tac tgc aac gaa aag ctg cag cag ctc ttc atc gaa ctc ccg ctc				1578
Asn Tyr Cys Asn Glu Lys Leu Gln Gln Leu Phe Ile Glu Leu Pro Leu				
439	444	449	454	
aag tgc gag cag gag gaa tac gag gca gag ggc atc gcg tgg gaa ccc				1626
Lys Ser Glu Gln Glu Glu Tyr Glu Ala Glu Gly Ile Ala Trp Glu Pro				
455	460	465	470	
gtc cag tat ttc aac aac aaa atc atc tgt gat ctg gtg gag gag aag				1674
Val Gln Tyr Phe Asn Asn Lys Ile Ile Cys Asp Leu Val Glu Glu Lys				
471	476	481	486	
ttt aag ggc atc atc tgc att ttg gat gag gag tgt ctg cgc ccc ggg				1722
Phe Lys Gly Ile Ile Ser Ile Leu Asp Glu Glu Cys Leu Arg Pro Gly				
487	492	497	502	
gag gcc aca gac ctg acc ttc ctg gag aag ctg gag gat act gtc aag				1770
Glu Ala Thr Asp Leu Thr Phe Leu Glu Lys Leu Glu Asp Thr Val Lys				
503	508	513	518	
cac cat cca cac ttc ctg acg cac aag ctg gct gac cag cgg acc agg				1818
His His Pro His Phe Leu Thr His Lys Leu Ala Asp Gln Arg Thr Arg				
519	524	529	534	
aaa tct ctg ggc cga ggg gaa ttc cgc ctt ctg cac tat gcg ggg gag				1866
Lys Ser Leu Gly Arg Gly Glu Phe Arg Leu Leu His Tyr Ala Gly Glu				
535	540	545	550	
gtg acc tac agc gtg acc ggg ttt ctg gac aaa aac aat gac ctt ctc				1914
Val Thr Tyr Ser Val Thr Gly Phe Leu Asp Lys Asn Asn Asp Leu Leu				
551	556	561	566	
ttc cgg aac ctt aag gag acc atg tgt agc tca aag aat ccc att atg				1962
Phe Arg Asn Leu Lys Glu Thr Met Cys Ser Ser Lys Asn Pro Ile Met				
567	572	577	582	
agc cag tgc ttc gac cgg agc gag ctc agt gac aag aag cgg cca gag				2010
Ser Gln Cys Phe Asp Arg Ser Glu Leu Ser Asp Lys Lys Arg Pro Glu				
583	588	593	598	
acg gtc gcc acc cag ttc aag atg agc ctc ctg cag ctg gtg gag atc				2058
Thr Val Ala Thr Gln Phe Lys Met Ser Leu Leu Gln Leu Val Glu Ile				
599	604	609	614	

ctg cag tct aag gag ccc gcc tac gtc cgc tgc atc aaa ccc aat gat	2106
Leu Gln Ser Lys Glu Pro Ala Tyr Val Arg Cys Ile Lys Pro Asn Asp	
615 620 625 630	
gcc aaa cag ccc ggc cgc ttt gac gag gtg ctg atc cgc cac cag gtg	2154
Ala Lys Gln Pro Gly Arg Phe Asp Glu Val Leu Ile Arg His Gln Val	
631 636 641 646	
aag tac ctg ggg ctg ttg gaa aac ctg cgc gtg cgc aga gcc ggc ttt	2202
Lys Tyr Leu Gly Leu Leu Glu Asn Leu Arg Val Arg Arg Ala Gly Phe	
647 652 657 662	
gcc tat cgc cgc aaa tac gaa gct ttc ctg caa agg tac aag tca ctg	2250
Ala Tyr Arg Arg Lys Tyr Glu Ala Phe Leu Gln Arg Tyr Lys Ser Leu	
663 668 673 678	
tgc cca gag acg tgg ccc acg tgg gca gga cgg ccg cag gat ggg gtg	2298
Cys Pro Glu Thr Trp Pro Thr Trp Ala Gly Arg Pro Gln Asp Gly Val	
679 684 689 694	
gct gtg ctg gtc cga cac ctg ggc tac aag cca gaa gag tac aag atg	2346
Ala Val Leu Val Arg His Leu Gly Tyr Lys Pro Glu Glu Tyr Lys Met	
695 700 705 710	
ggc agg acc aag atc ttc atc cgc ttc ccc aag acc ctg ttt gcc aca	2394
Gly Arg Thr Lys Ile Phe Ile Arg Phe Pro Lys Thr Leu Phe Ala Thr	
711 716 721 726	
gag gat gcc ctg gag gtc cgg cgg cag agc ctg gcc aca aag atc caa	2442
Glu Asp Ala Leu Glu Val Arg Arg Gln Ser Leu Ala Thr Lys Ile Gln	
727 732 737 742	
gct gcc tgg agg ggc ttt cac tgg cgg cag aaa ttc ctc cgg gtg aag	2490
Ala Ala Trp Arg Gly Phe His Trp Arg Gln Lys Phe Leu Arg Val Lys	
743 748 753 758	
aga tca gcc atc tgc atc cag tcg tgg tgg cgt gga aca ctg ggc cgg	2538
Arg Ser Ala Ile Cys Ile Gln Ser Trp Trp Arg Gly Thr Leu Gly Arg	
759 764 769 774	
agg aag gca gcc aag agg aag tgg gcg gca cag acc atc cgg cgg ctc	2586
Arg Lys Ala Ala Lys Arg Lys Trp Ala Ala Gln Thr Ile Arg Arg Leu	
775 780 785 790	
atc cga ggc ttc atc ctg cgc cac gcc ccc cgc tgc ccc gag aac gcc	2634
Ile Arg Gly Phe Ile Leu Arg His Ala Pro Arg Cys Pro Glu Asn Ala	
791 796 801 806	
ttc ttc ctg gac cat gtg cgc acc tct ttt ttg cta aac ctg agg cgg	2682
Phe Phe Leu Asp His Val Arg Thr Ser Phe Leu Leu Asn Leu Arg Arg	
807 812 817 822	
cag ctg ccc cgg aat gtc ctg gac acc tcg tgg ccc acg ccc cca cct	2730
Gln Leu Pro Arg Asn Val Leu Asp Thr Ser Trp Pro Thr Pro Pro Pro	
823 828 833 838	

gcc ctg cgt gag gcc tca gag ctt ctg cgg gag ttg tgc ata aag aac	2778
Ala Leu Arg Glu Ala Ser Glu Leu Leu Arg Glu Leu Cys Ile Lys Asn	
839 844 849 854	
atg gtg tgg aaa tac tgc cgg agt atc agc cct gag tgg aag cag cag	2826
Met Val Trp Lys Tyr Cys Arg Ser Ile Ser Pro Glu Trp Lys Gln Gln	
855 860 865 870	
ctg cag cag aag gcc gtg gct agt gag atc ttc aag ggc aag aag gat	2874
Leu Gln Gln Lys Ala Val Ala Ser Glu Ile Phe Lys Gly Lys Lys Asp	
871 876 881 886	
aat tac cct cag agt gta ccc agg ctc ttc atc agc act cgg ctt ggt	2922
Asn Tyr Pro Gln Ser Val Pro Arg Leu Phe Ile Ser Thr Arg Leu Gly	
887 892 897 902	
aca gat gag atc agc ccc cga gtg ctg cag gcc ttg ggc tct gag ccc	2970
Thr Asp Glu Ile Ser Pro Arg Val Leu Gln Ala Leu Gly Ser Glu Pro	
903 908 913 918	
att cag tat gcg gtg cct gtt gtg aaa tac gac cgc aag ggc tac aag	3018
Ile Gln Tyr Ala Val Pro Val Val Lys Tyr Asp Arg Lys Gly Tyr Lys	
919 924 929 934	
cct cgc tcc cgg cag ctg ctg ctc acg ccc aac gcc gtc gtc atc gtg	3066
Pro Arg Ser Arg Gln Leu Leu Leu Thr Pro Asn Ala Val Val Ile Val	
935 940 945 950	
gag gac gcc aaa gtc aag cag agg att gat tac gcc aac ctg acc gga	3114
Glu Asp Ala Lys Val Lys Gln Arg Ile Asp Tyr Ala Asn Leu Thr Gly	
951 956 961 966	
atc tct gtc agc agc ctg agc gac agt ctt ttt gtg ctt cat gta cag	3162
Ile Ser Val Ser Ser Leu Ser Asp Ser Leu Phe Val Leu His Val Gln	
967 972 977 982	
cgt gcg gac aat aag caa aag gga gat gtg gtg ctg cag agt gac cac	3210
Arg Ala Asp Asn Lys Gln Lys Gly Asp Val Val Leu Gln Ser Asp His	
983 988 993 998	
gtg att gag acg ctg acc aag aca gcc ctc agt gcc aac cgc gtg aac	3258
Val Ile Glu Thr Leu Thr Lys Thr Ala Leu Ser Ala Asn Arg Val Asn	
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agc atc aac atc aac cag ggc agc atc acg ttt gca ggg ggc ccc ggc	3306
Ser Ile Asn Ile Asn Gln Gly Ser Ile Thr Phe Ala Gly Gly Pro Gly	
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agg gat ggc acc att gac ttc aca ccc ggc tgc gag ctg ctc atc acc	3354
Arg Asp Gly Thr Ile Asp Phe Thr Pro Gly Ser Glu Leu Leu Ile Thr	
1031 1036 1041 1046	
aag gcc aag aac ggg cac ctg gct gtg gtc gcc cca cgg ctg aat tct	3402
Lys Ala Lys Asn Gly His Leu Ala Val Val Ala Pro Arg Leu Asn Ser	
1047 1052 1057 1062	
cgg tga taaaggcgcc cactggacc tcccaacgcc caatgctttg cttttctcct	3458

Arg \*  
1063

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ctcccccttc ccagttacca aagactcgaa cttccagaca gggacccagg gacaccccga 3518
agcccacctg caatctccca cctcctgccc atccctctct tgagggagca gcaggggcca 3578
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gagccatgcc agccctactg ccgatgcaa atatttgaga gaagggaact tttgctgagg 3698
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ccgagcggag agcgcgggcc gttttctttc ctggtgtccc gtcgcggtt gggacccggc 180
aag atg ggc aag aag ggc aag aag gag aag aag ggc cgc ggc gcg gag 228
Met Gly Lys Lys Gly Lys Lys Glu Lys Lys Gly Arg Gly Ala Glu
1 5 10
aag acg gcc gcc aag atg gag aag aag gtg tct aag cgc tcg cgg aag 276
Lys Thr Ala Ala Lys Met Glu Lys Lys Val Ser Lys Arg Ser Arg Lys
16 21 26 31
gag gag gaa gac ctg gaa gcg ctc ata gcc cat ttc cag aca ctc gat 324

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Glu	Glu	Glu	Asp	Leu	Glu	Ala	Leu	Ile	Ala	His	Phe	Gln	Thr	Leu	Asp		
32					37					42					47		
gcc	aag	agg	act	cag	act	gtg	gaa	ctt	ccg	tgc	ccc	cca	ccc	tca	cca	372	
Ala	Lys	Arg	Thr	Gln	Thr	Val	Glu	Leu	Pro	Cys	Pro	Pro	Pro	Ser	Pro		
48					53					58					63		
agg	tta	aat	gcc	tcc	ctc	tcg	gtt	cat	cct	gag	aaa	gat	gag	tta	atc	420	
Arg	Leu	Asn	Ala	Ser	Leu	Ser	Val	His	Pro	Glu	Lys	Asp	Glu	Leu	Ile		
64					69					74					79		
ctt	ttt	gga	ggt	gaa	tat	ttc	aac	ggc	caa	aaa	act	ttt	ttg	tat	aac	468	
Leu	Phe	Gly	Gly	Glu	Tyr	Phe	Asn	Gly	Gln	Lys	Thr	Phe	Leu	Tyr	Asn		
80					85					90					95		
gag	ctc	tat	gtc	tac	aat	atc	aga	aag	gac	acc	tgg	acc	aaa	gtt	gac	516	
Glu	Leu	Tyr	Val	Tyr	Asn	Ile	Arg	Lys	Asp	Thr	Trp	Thr	Lys	Val	Asp		
96					101					106					111		
atc	ccc	agt	cca	cct	ccg	agg	cgc	tgt	gct	cac	cag	gcg	gtg	gta	gtg	564	
Ile	Pro	Ser	Pro	Pro	Pro	Arg	Arg	Cys	Ala	His	Gln	Ala	Val	Val	Val		
112					117					122					127		
cct	caa	ggt	ggc	gga	cag	ctg	tgg	gtc	ttt	gga	ggg	gag	ttt	gcc	tct	612	
Pro	Gln	Gly	Gly	Gly	Gln	Leu	Trp	Val	Phe	Gly	Gly	Glu	Phe	Ala	Ser		
128					133					138					143		
ccc	aac	gga	gag	cag	ttc	tac	cac	tac	aag	gat	ctc	tgg	gtc	ctg	cat	660	
Pro	Asn	Gly	Glu	Gln	Phe	Tyr	His	Tyr	Lys	Asp	Leu	Trp	Val	Leu	His		
144					149					154					159		
ttg	gcc	acc	aag	acc	tgg	gaa	caa	gtc	aaa	tca	aca	ggc	ggt	cct	tcg	708	
Leu	Ala	Thr	Lys	Thr	Trp	Glu	Gln	Val	Lys	Ser	Thr	Gly	Gly	Pro	Ser		
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ggt	cgg	agt	gga	cat	cgg	atg	gtg	gcc	tgg	aag	aga	caa	ttg	atc	ctg	756	
Gly	Arg	Ser	Gly	His	Arg	Met	Val	Ala	Trp	Lys	Arg	Gln	Leu	Ile	Leu		
176					181					186					191		
ttt	ggt	ggc	ttc	cat	gaa	agt	aca	cgg	gat	tac	atc	tac	tac	aac	gac	804	
Phe	Gly	Gly	Phe	His	Glu	Ser	Thr	Arg	Asp	Tyr	Ile	Tyr	Tyr	Asn	Asp		
192					197					202					207		
gtg	tat	gcc	ttt	aat	ctg	gac	acc	ttc	aca	tgg	agc	aag	ctg	tcc	ccg	852	
Val	Tyr	Ala	Phe	Asn	Leu	Asp	Thr	Phe	Thr	Trp	Ser	Lys	Leu	Ser	Pro		
208					213					218					223		
tca	ggg	acg	ggg	ccc	aca	ccc	aga	tca	ggc	tgc	cag	atg	tcc	gtc	act	900	
Ser	Gly	Thr	Gly	Pro	Thr	Pro	Arg	Ser	Gly	Cys	Gln	Met	Ser	Val	Thr		
224					229					234					239		
ccc	cag	ggc	ggc	atc	gtc	gtc	tat	ggg	ggc	tac	tcg	aaa	cag	aga	gtt	948	
Pro	Gln	Gly	Gly	Ile	Val	Val	Tyr	Gly	Gly	Tyr	Ser	Lys	Gln	Arg	Val		
240					245					250					255		
aag	aaa	gac	gtg	gac	aag	ggc	aca	cgg	cac	tca	gac	atg	ttc	ctg	ctg	996	
Lys	Lys	Asp	Val	Asp	Lys	Gly	Thr	Arg	His	Ser	Asp	Met	Phe	Leu	Leu		

256	261	266	271	
aag cca gag gac gga	aga gaa gac aag tgg	ggt tgg act cgg atg aac		1044
Lys Pro Glu Asp Gly	Arg Glu Asp Lys Trp	Val Trp Thr Arg Met Asn		
272	277	282	287	
cct tcg ggg gtc aag	ccc acc cca cgg tct	ggc ttt tcc gtg gcc atg		1092
Pro Ser Gly Val Lys	Pro Thr Pro Arg Ser	Gly Phe Ser Val Ala Met		
288	293	298	303	
gcc ccg aat cac cag	aca ctg ttc ttc ggg	ggt gtc tgt gac gag gaa		1140
Ala Pro Asn His Gln	Thr Leu Phe Phe Gly	Gly Val Cys Asp Glu Glu		
304	309	314	319	
gag gag gag agc ctg	tcg ggc gag ttc ttc	aac gat ctg tac ttc tac		1188
Glu Glu Glu Ser Leu	Ser Gly Glu Phe Phe	Asn Asp Leu Tyr Phe Tyr		
320	325	330	335	
gac gcc acc agg aac	cgt tgg ttt gag gga	cag ctg aag aaa ctc agg		1236
Asp Ala Thr Arg Asn	Arg Trp Phe Glu Gly	Gln Leu Lys Lys Leu Arg		
336	341	346	351	
agt ggc tgg agg aga	cgg act cgg aag agg	aca gtg agg agg ttg agg		1284
Ser Gly Trp Arg Arg	Arg Thr Arg Lys Arg	Thr Val Arg Arg Leu Arg		
352	357	362	367	
gcg ccg agg gtg ggg	tcg acg acg aag aca	gcg gag agg aga gcg gtg		1332
Ala Pro Arg Val Gly	Ser Thr Thr Lys Thr	Ala Glu Arg Arg Ala Val		
368	373	378	383	
cgg agg act gag agc	ccc tgc cag ggg cgc	ctg gca agt gct gtg ccc		1380
Arg Arg Thr Glu Ser	Pro Cys Gln Gly Arg	Leu Ala Ser Ala Val Pro		
384	389	394	399	
acg tcc gcc cag gac	cca gcc gtg ttg agt	gaa gct ctt ggg gcc agc		1428
Thr Ser Ala Gln Asp	Pro Ala Val Leu Ser	Glu Ala Leu Gly Ala Ser		
400	405	410	415	
gtg cgt cct gac gca	cag gag aga gct gaa	ggt ggg tgg ccc agg cca		1476
Val Arg Pro Asp Ala	Gln Glu Arg Ala Glu	Gly Gly Trp Pro Arg Pro		
416	421	426	431	
ggg tgt gaa ctt tct	ccc atg gtt tag tctct	gacgcggcac tgggccggaa		1528
Gly Cys Glu Leu Ser	Pro Met Val *			
432	437			
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tggcatagca tgaacatag caaaggctat gttttagagg	cacaag atg acg aac	175
	Met Thr Asn	
	1	
tat cgc gtt gag agt agc agc gga cgg gcg gcg	cgc aag atg agg ctc	223
Tyr Arg Val Glu Ser Ser Ser Gly Arg Ala Ala	Arg Lys Met Arg Leu	
4 9 14 19		
gca tta atg gga cct gcg ttc att gcg gcg att	ggt tat atc gat ccc	271
Ala Leu Met Gly Pro Ala Phe Ile Ala Ala Ile	Gly Tyr Ile Asp Pro	
20 25 30 35		
ggt aac ttt gcg acc aat att cag gcg ggt gct	agc ttc ggc tat cag	319
Gly Asn Phe Ala Thr Asn Ile Gln Ala Gly Ala	Ser Phe Gly Tyr Gln	
36 41 46 51		
cta ctg tgg gtt gtc gtt tgg gcc aac ctg atg	gcg atg ctg att cag	367
Leu Leu Trp Val Val Val Trp Ala Asn Leu Met	Ala Met Leu Ile Gln	
52 57 62 67		
atc ctc tct gcc aaa cta ggg att gcc acc ggt	aaa aat ctg gcg gag	415
Ile Leu Ser Ala Lys Leu Gly Ile Ala Thr Gly	Lys Asn Leu Ala Glu	
68 73 78 83		
cag att cgc gat cac tat ccg cgt ccc gta gtg	tgg ttc tat tgg gtt	463
Gln Ile Arg Asp His Tyr Pro Arg Pro Val Val	Trp Phe Tyr Trp Val	
84 89 94 99		
cag gca gaa att att gcg atg gca acc gac ctg	gcg gaa ttt att ggt	511
Gln Ala Glu Ile Ile Ala Met Ala Thr Asp	Leu Ala Glu Phe Ile Gly	
100 105 110 115		
gcg gcg atc ggt ttt aaa ctc att ctt ggt gtt	tcg ttg ttg cag ggc	559
Ala Ala Ile Gly Phe Lys Leu Ile Leu Gly Val	Ser Leu Leu Gln Gly	
116 121 126 131		
gcg gtg ctg acg ggg atc gcg act ttc ctg att	tta atg ctg caa cgt	607
Ala Val Leu Thr Gly Ile Ala Thr Phe Leu Ile	Leu Met Leu Gln Arg	
132 137 142 147		
cgc ggg caa aaa ccg ctg gag aaa gtg att ggc	ggg tta ctg ttg ttt	655
Arg Gly Gln Lys Pro Leu Glu Lys Val Ile Gly	Gly Leu Leu Leu Phe	
148 153 158 163		
gtt gcc gcg gct tac att gtc gag ttg att ttc	tcc cag cct aac ctg	703
Val Ala Ala Ala Tyr Ile Val Glu Leu Ile Phe	Ser Gln Pro Asn Leu	
164 169 174 179		

gcg cag ctg ggt aaa gga atg gtg atc ccg agt tta cct act tcg gaa	751
Ala Gln Leu Gly Lys Gly Met Val Ile Pro Ser Leu Pro Thr Ser Glu	
180 185 190 195	
gcg gtc ttc ctg gca gca ggc gtg tta ggg gcg acg att atg ccg cat	799
Ala Val Phe Leu Ala Ala Gly Val Leu Gly Ala Thr Ile Met Pro His	
196 201 206 211	
gtg att tat ttg cac tcc tcg ctc act cag cat tta cat ggc ggt tcg	847
Val Ile Tyr Leu His Ser Ser Leu Thr Gln His Leu His Gly Gly Ser	
212 217 222 227	
cgt caa caa cgt tat tcc gcc acc aaa tgg gat gtg gct atc gcc atg	895
Arg Gln Gln Arg Tyr Ser Ala Thr Lys Trp Asp Val Ala Ile Ala Met	
228 233 238 243	
act att gcc ggt ttt gtc aat ctg gcg atg atg gct aca gct gcg gcg	943
Thr Ile Ala Gly Phe Val Asn Leu Ala Met Met Ala Thr Ala Ala Ala	
244 249 254 259	
gcg ttc cac ttt tcc ggt cat act ggt gtt gcc gat ctt gat gag gct	991
Ala Phe His Phe Ser Gly His Thr Gly Val Ala Asp Leu Asp Glu Ala	
260 265 270 275	
tat ctg acg ctg caa ccg ctg tta agc cac gct gcg gca acg gtc ttt	1039
Tyr Leu Thr Leu Gln Pro Leu Leu Ser His Ala Ala Ala Thr Val Phe	
276 281 286 291	
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Gly Leu Ser Leu Val Ala Ala Gly Leu Ser Thr Val Val Gly Thr	
292 297 302 307	
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Leu Ala Gly Gln Val Val Met Gln Gly Phe Ile Arg Phe His Ile Pro	
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Leu Trp Val Arg Arg Thr Val Thr Met Leu Pro Ser Phe Ile Val Ile	
324 329 334 339	
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Leu Met Gly Leu Asp Pro Thr Arg Ile Leu Val Met Ser Gln Val Leu	
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Leu Ser Phe Gly Ile Ala Leu Ala Leu Val Pro Leu Leu Ile Phe Thr	
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Ser Asp Ser Lys Leu Met Gly Asp Leu Val Asn Ser Lys Arg Val Lys	
372 377 382 387	
cag aca ggc tgg gtg att gtg gtg ctg gtc gtg gcg ctg aat atc tgg	1375
Gln Thr Gly Trp Val Ile Val Val Leu Val Val Ala Leu Asn Ile Trp	
388 393 398 403	

ttg ttg gtg ggg acg gcg ctg gga ttg tag t tgaatgagcg tcgcatctgg 1426  
 Leu Leu Val Gly Thr Ala Leu Gly Leu \*  
 404 409

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acc caa aaa aag aga tct ctc gag gat ccg aat tcg cgg ccg cgt cga 96  
 Thr Gln Lys Lys Arg Ser Leu Glu Asp Pro Asn Ser Arg Pro Arg Arg  
 16 21 26 31

cct ttg aca gag tgc aag acg atg act tgc aaa atg tcg cag ctg gaa 144  
 Pro Leu Thr Glu Cys Lys Thr Met Thr Cys Lys Met Ser Gln Leu Glu  
 32 37 42 47

cgc aac ata gag acc atc atc aac acc ttc cac caa tac tct gtg aag 192  
 Arg Asn Ile Glu Thr Ile Ile Asn Thr Phe His Gln Tyr Ser Val Lys  
 48 53 58 63

ctg ggg cac cca gac acc ctg aac cag ggg gaa ttc aaa gag ctg gtg 240  
 Leu Gly His Pro Asp Thr Leu Asn Gln Gly Glu Phe Lys Glu Leu Val  
 64 69 74 79

cga aaa gat ctg caa aat ttt ctc aag aag gag aat aag aat gaa aag 288  
 Arg Lys Asp Leu Gln Asn Phe Leu Lys Lys Glu Asn Lys Asn Glu Lys  
 80 85 90 95

gtc ata gaa cac atc atg gag gac ctg gac aca aat gca gac aag cag 336  
 Val Ile Glu His Ile Met Glu Asp Leu Asp Thr Asn Ala Asp Lys Gln  
 96 101 106 111

ctg agc ttc gag gag ttc atc atg ctg atg gcg agg cta acc tgg gcc 384  
 Leu Ser Phe Glu Glu Phe Ile Met Leu Met Ala Arg Leu Thr Trp Ala

112	117	122	127	
tec cac gag aag atg	cac gag ggt gac gag	ggc cct ggc cac cac cat	432	
Ser His Glu Lys Met	His Glu Gly Asp Glu	Gly Pro Gly His His His		
128	133	138	143	
aag cca ggc ctc ggg	gag ggc acc ccc taa g	accacagtgg ccaagatcac	483	
Lys Pro Gly Leu Gly	Glu Gly Thr Pro *			
144	149			
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caggccaccc tgcctctacc	caaccagggc cccggggcct	gttatgtcaa actgtcttgg	603	
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atg gcc ctg tgc ctg	aag cag gtg ttc gcc aag	gac aag acg ttc cgg	284	
Met Ala Leu Cys Leu Lys	Gln Val Phe Ala Lys	Asp Lys Thr Phe Arg		
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ccg cgg aag cgc ttt	gag ccg ggc aca cag	cgc ttt gag ctg tac aag	332	
Pro Arg Lys Arg Phe	Glu Pro Gly Thr Gln Arg	Phe Glu Leu Tyr Lys		
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aag gca cag gcc tct	ctc aag tcg ggc ctg	gac ctg cgc agt gtg gtg	380	
Lys Ala Gln Ala Ser	Leu Lys Ser Gly Leu	Asp Leu Arg Ser Val Val		
33	38	43	48	
agg cta cca ccc ggg	gag aac atc gac gac	tgg atc gcc gtg cac gtg	428	
Arg Leu Pro Pro Gly	Glu Asn Ile Asp Asp	Trp Ile Ala Val His Val		
49	54	59	64	
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Val Asp Phe Phe Asn Arg Ile Asn Leu Ile Tyr Gly Thr Met Ala Glu	
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Arg Cys Ser Glu Thr Ser Cys Pro Val Met Ala Gly Gly Pro Arg Tyr	
81 86 91 96	
gag tac cgc tgg cag gac gag cgc cag tac cgg cgg ccc gcc aag ctc	572
Glu Tyr Arg Trp Gln Asp Glu Arg Gln Tyr Arg Arg Pro Ala Lys Leu	
97 102 107 112	
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Ser Ala Pro Arg Tyr Met Ala Leu Leu Met Asp Trp Ile Glu Gly Leu	
113 118 123 128	
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Ile Asn Asp Glu Glu Val Phe Pro Thr Arg Val Gly Val Pro Phe Pro	
129 134 139 144	
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Lys Asn Phe Gln Gln Val Cys Thr Lys Ile Leu Thr Arg Leu Phe Arg	
145 150 155 160	
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Val Phe Val His Val Tyr Ile His His Phe Asp Ser Ile Leu Ser Met	
161 166 171 176	
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Gly Ala Glu Ala His Val Asn Thr Cys Tyr Lys His Phe Tyr Tyr Phe	
177 182 187 192	
atc cgc gag ttc agt ctg gtg gac cag cgg gag ctg gag cca ctg agg	860
Ile Arg Glu Phe Ser Leu Val Asp Gln Arg Glu Leu Glu Pro Leu Arg	
193 198 203 208	
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Glu Met Thr Glu Arg Ile Cys His *	
209 214	
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cactgcagac	acaggctctg	attctcttac	ccagagatgc	ccatgagctg	acattttact	1692
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cc	atg gcc cag tgg agg aag aag aaa ggg ctc cgg aag cgc cga ggc					167
	Met Ala Gln Trp Arg Lys Lys Lys Gly Leu Arg Lys Arg Arg Gly					
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gcg gcc tcc cag gcc cgc ggc agc gac tcg gag gac ggc gag ttt gag	215
Ala Ala Ser Gln Ala Arg Gly Ser Asp Ser Glu Asp Gly Glu Phe Glu	
16 21 26 31	
atc cag gcg gaa gat gac gcc cgg gcc cgg aag ctg gga cct gga aga	263
Ile Gln Ala Glu Asp Asp Ala Arg Ala Arg Lys Leu Gly Pro Gly Arg	
32 37 42 47	
ccc ctg ccc acc ttc ccc acc tcg gaa tgc acc tcg gat gtg gag ccg	311
Pro Leu Pro Thr Phe Pro Thr Ser Glu Cys Thr Ser Asp Val Glu Pro	
48 53 58 63	
gac acc cgg gag atg gtg cgt gcc cag aac aag aag aag aag tct	359
Asp Thr Arg Glu Met Val Arg Ala Gln Asn Lys Lys Lys Lys Ser	
64 69 74 79	
gga ggc ttc cag tcc atg ggc ctg agc tac ccg gtg ttc aaa ggc atc	407
Gly Gly Phe Gln Ser Met Gly Leu Ser Tyr Pro Val Phe Lys Gly Ile	
80 85 90 95	
atg aag aag ggg tac aag gtg cca aca ccc atc cag agg aag acc atc	455
Met Lys Lys Gly Tyr Lys Val Pro Thr Pro Ile Gln Arg Lys Thr Ile	
96 101 106 111	
ccg gtg atc ttg gat ggc aag gac gtg gtg gcc atg gcc cgg acg ggc	503
Pro Val Ile Leu Asp Gly Lys Asp Val Val Ala Met Ala Arg Thr Gly	
112 117 122 127	
agt ggc aag aca gcc tgc ttc ctc ctc cca atg ttc gag cgg ctc aag	551
Ser Gly Lys Thr Ala Cys Phe Leu Leu Pro Met Phe Glu Arg Leu Lys	
128 133 138 143	
acc cac agt gcc cag acc ggg gcc cgc gcc ctc atc ctc tcg ccg acc	599
Thr His Ser Ala Gln Thr Gly Ala Arg Ala Leu Ile Leu Ser Pro Thr	
144 149 154 159	
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Arg Glu Leu Ala Leu Gln Thr Leu Lys Phe Thr Lys Glu Leu Gly Lys	
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Phe Thr Gly Leu Lys Thr Ala Leu Ile Leu Gly Gly Asp Arg Met Glu	
176 181 186 191	
gac cag ttt gca gcc ctg cac gaa aat ccc gac ata att att gcc acg	743
Asp Gln Phe Ala Ala Leu His Glu Asn Pro Asp Ile Ile Ile Ala Thr	
192 197 202 207	
ccc gga cgg ttg gtg cat gtg gct gtg gaa atg agc ctg aag ctg cag	791
Pro Gly Arg Leu Val His Val Ala Val Glu Met Ser Leu Lys Leu Gln	
208 213 218 223	
agt gtg gaa tac gtg gtg ttc gat gaa gct gac cgg ctt ttt gaa atg	839
Ser Val Glu Tyr Val Val Phe Asp Glu Ala Asp Arg Leu Phe Glu Met	
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Gly	Phe	Ala	Glu	Gln	Leu	Gln	Glu	Ile	Asn	Ala	Arg	Leu	Pro	Gly	Gly		
240					245					250					255		
cac	cag	acg	gtg	ctg	ttc	tcc	gcc	acg	ctg	ccc	aaa	ctg	ctg	gtg	gaa	935	
His	Gln	Thr	Val	Leu	Phe	Ser	Ala	Thr	Leu	Pro	Lys	Leu	Leu	Val	Glu		
256					261					266					271		
ttt	gcc	cgg	gct	ggc	ctc	acg	gag	ccc	gtg	ctc	atc	cgg	ctt	gac	gtg	983	
Phe	Ala	Arg	Ala	Gly	Leu	Thr	Glu	Pro	Val	Leu	Ile	Arg	Leu	Asp	Val		
272					277					282					287		
gat	acc	aag	ctc	aac	gag	cag	ctg	aag	acc	tcc	ttc	ttc	ctc	gtg	cgg	1031	
Asp	Thr	Lys	Leu	Asn	Glu	Gln	Leu	Lys	Thr	Ser	Phe	Phe	Leu	Val	Arg		
288					293					298					303		
gag	gac	acc	aag	gct	gcc	gtg	ctg	ctc	cac	ctg	ctg	cac	aac	gtg	gtg	1079	
Glu	Asp	Thr	Lys	Ala	Ala	Val	Leu	Leu	His	Leu	Leu	His	Asn	Val	Val		
304					309					314					319		
cgg	ccc	cag	gac	cag	acc	gtg	gtg	ttt	gtg	gcc	acg	aag	cac	cac	gcc	1127	
Arg	Pro	Gln	Asp	Gln	Thr	Val	Val	Phe	Val	Ala	Thr	Lys	His	His	Ala		
320					325					330					335		
gag	tac	ctc	act	gag	ctg	ctg	acg	acc	cag	cgg	gtg	agc	tgc	gcc	cac	1175	
Glu	Tyr	Leu	Thr	Glu	Leu	Leu	Thr	Thr	Gln	Arg	Val	Ser	Cys	Ala	His		
336					341					346					351		
atc	tac	agt	gcc	cta	gac	ccg	aca	gcc	cgc	aag	atc	aat	ctc	gcc	aaa	1223	
Ile	Tyr	Ser	Ala	Leu	Asp	Pro	Thr	Ala	Arg	Lys	Ile	Asn	Leu	Ala	Lys		
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ttc	acg	ctt	ggc	aag	tgc	tcc	act	ctc	att	gtg	act	gac	ctg	gcc	gcc	1271	
Phe	Thr	Leu	Gly	Lys	Cys	Ser	Thr	Leu	Ile	Val	Thr	Asp	Leu	Ala	Ala		
368					373					378					383		
cga	ggc	ctg	gac	atc	ccg	ctg	ctg	gac	aat	gtc	atc	aac	tac	agc	ttc	1319	
Arg	Gly	Leu	Asp	Ile	Pro	Leu	Leu	Asp	Asn	Val	Ile	Asn	Tyr	Ser	Phe		
384					389					394					399		
ccc	gcc	aag	ggc	aaa	ctc	ttc	ctg	cac	cgc	gtg	ggc	cgt	gtg	gct	cgg	1367	
Pro	Ala	Lys	Gly	Lys	Leu	Phe	Leu	His	Arg	Val	Gly	Arg	Val	Ala	Arg		
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gct	ggc	cga	agt	ggc	aca	gcc	tac	tcc	ttg	gtg	gcc	cct	gat	gaa	atc	1415	
Ala	Gly	Arg	Ser	Gly	Thr	Ala	Tyr	Ser	Leu	Val	Ala	Pro	Asp	Glu	Ile		
416					421					426					431		
ccc	tac	ctg	ctg	gat	ctg	cac	ctg	ttc	ctg	ggc	cgc	tcc	ctc	acc	ctc	1463	
Pro	Tyr	Leu	Leu	Asp	Leu	His	Leu	Phe	Leu	Gly	Arg	Ser	Leu	Thr	Leu		
432					437					442					447		
gcc	cga	ccc	ctc	aag	gag	ccc	tca	ggc	gtg	gcc	ggc	gtg	gat	ggc	atg	1511	
Ala	Arg	Pro	Leu	Lys	Glu	Pro	Ser	Gly	Val	Ala	Gly	Val	Asp	Gly	Met		
448					453					458					463		
ctg	ggc	cgg	gtg	cca	cag	agt	gtg	gtg	gac	gag	gag	gac	agt	ggc	ctg	1559	
Leu	Gly	Arg	Val	Pro	Gln	Ser	Val	Val	Asp	Glu	Glu	Asp	Ser	Gly	Leu		



464	469	474	479	
cag agc acc ctg gag gca tcg ctg gag cta cgg ggc ctg gcc cgc gtt				1607
Gln Ser Thr Leu Glu Ala Ser Leu Glu Leu Arg Gly Leu Ala Arg Val				
480	485	490	495	
gct gat aac gcc cag cag cag tat gtg cgc tca cgc ccg gcg ccc tcg				1655
Ala Asp Asn Ala Gln Gln Gln Tyr Val Arg Ser Arg Pro Ala Pro Ser				
496	501	506	511	
cct gag tcc atc aag agg gcc aag gag atg gac ctt gtg ggg ctg ggc				1703
Pro Glu Ser Ile Lys Arg Ala Lys Glu Met Asp Leu Val Gly Leu Gly				
512	517	522	527	
ctg cac ccc ctc ttc agc tcg cgt ttt gag gag gag gag ctg cag cgg				1751
Leu His Pro Leu Phe Ser Ser Arg Phe Glu Glu Glu Leu Gln Arg				
528	533	538	543	
ctg agg ctg gtg gac agc ata aag aac tac cgc tcc cgg gcg gac att				1799
Leu Arg Leu Val Asp Ser Ile Lys Asn Tyr Arg Ser Arg Ala Asp Ile				
544	549	554	559	
ttc tca gag gtc gtg ggc cgg aag cgg cag cgg tca gga ccc aac agg				1847
Phe Ser Glu Val Val Gly Arg Lys Arg Gln Arg Ser Gly Pro Asn Arg				
560	565	570	575	
gga gcc aag agg cgg agg gag gag gcc cgg cag cgg gac cag gaa ttc				1895
Gly Ala Lys Arg Arg Arg Glu Glu Ala Arg Gln Arg Asp Gln Glu Phe				
576	581	586	591	
tac atc ccc tac cgg ccc aag gac ttt gac agc gag cgg ggc ctg agc				1943
Tyr Ile Pro Tyr Arg Pro Lys Asp Phe Asp Ser Glu Arg Gly Leu Ser				
592	597	602	607	
atc agc ggg gaa ggg gga gcc ttt gag cag cag gca gct ggc gct gtc				1991
Ile Ser Gly Glu Gly Gly Ala Phe Glu Gln Gln Ala Ala Gly Ala Val				
608	613	618	623	
ctg gac ttg atg ggg gat gaa gcc cag aac ctg acg agg ggc cgg cag				2039
Leu Asp Leu Met Gly Asp Glu Ala Gln Asn Leu Thr Arg Gly Arg Gln				
624	629	634	639	
cag ctc aag tgg gac cgt aag aag aag cgg ttt gtg gga cag tca gga				2087
Gln Leu Lys Trp Asp Arg Lys Lys Lys Arg Phe Val Gly Gln Ser Gly				
640	645	650	655	
cag gaa gac aag aag aag att aag aca gag agc ggc cgc tac atc agc				2135
Gln Glu Asp Lys Lys Lys Ile Lys Thr Glu Ser Gly Arg Tyr Ile Ser				
656	661	666	671	
agc tcc tac aag cga gac ctc tat cag aag tgg aaa cag aaa cag aaa				2183
Ser Ser Tyr Lys Arg Asp Leu Tyr Gln Lys Trp Lys Gln Lys Gln Lys				
672	677	682	687	
att gat gat cgt gac tcg gac gaa gaa ggg gca tct gac cgg cga ggc				2231
Ile Asp Asp Arg Asp Ser Asp Glu Glu Gly Ala Ser Asp Arg Arg Gly				
688	693	698	703	

cca gag cga aga ggt ggg aag cga gac cgt ggc caa gca ggt gca tcc	2279
Pro Glu Arg Arg Gly Gly Lys Arg Asp Arg Gly Gln Ala Gly Ala Ser	
704 709 714 719	
cgg ccc cac gcc cca ggc acc cct gca ggc cga gtc cgc ccg gaa ctc	2327
Arg Pro His Ala Pro Gly Thr Pro Ala Gly Arg Val Arg Pro Glu Leu	
720 725 730 735	
aag acc aag cag cag atc ctg aag cag cgg cgc cgg gcc cag aag ctg	2375
Lys Thr Lys Gln Gln Ile Leu Lys Gln Arg Arg Arg Ala Gln Lys Leu	
736 741 746 751	
cac ttc ctg cag cgt ggt ggc ctc aag cag ctc tct gcc cgc aac cgc	2423
His Phe Leu Gln Arg Gly Gly Leu Lys Gln Leu Ser Ala Arg Asn Arg	
752 757 762 767	
cgc cgc gtc cag gag ctg cag cag ggc gcc ttc ggc cgg ggt gcc cgc	2471
Arg Arg Val Gln Glu Leu Gln Gln Gly Ala Phe Gly Arg Gly Ala Arg	
768 773 778 783	
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Ser Lys Lys Gly Lys Met Arg Lys Arg Met *	
784 789 794	
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gttccaacgg aactccctc tggaatgtca tgagaattaa aaactggggc ataagggaag	180

aagatggctg agaatggagc ctcggtttct atgtctgtaa aacaactgcc aggaactcct 240

gccaccgcca ccggtctccc atg gcc cac ata ccc agt ggg ggt gcc cca gca 292  
Met Ala His Ile Pro Ser Gly Gly Ala Pro Ala  
1 5

gcg ggg gca gcc ccc atg ggc ccc cag tat tgc gtg tgc aag gtg gag 340  
Ala Gly Ala Ala Pro Met Gly Pro Gln Tyr Cys Val Cys Lys Val Glu  
12 17 22 27

ctg tca gtg agt ggc cag aac cta ctg gac cgg gat gtt acc tcc aag 388  
Leu Ser Val Ser Gly Gln Asn Leu Leu Asp Arg Asp Val Thr Ser Lys  
28 33 38 43

tcc gac ccc ttc tgt gtc ctc ttt aca gag aac aat ggc aga tgg atc 436  
Ser Asp Pro Phe Cys Val Leu Phe Thr Glu Asn Asn Gly Arg Trp Ile  
44 49 54 59

gag tac gac agg aca gaa acc gcg atc aac aac ctc aac ccc gcc ttc 484  
Glu Tyr Asp Arg Thr Glu Thr Ala Ile Asn Asn Leu Asn Pro Ala Phe  
60 65 70 75

tcc aag aag ttc gtg ctt gac tac cac ttc gag gag gta cag aag ctc 532  
Ser Lys Lys Phe Val Leu Asp Tyr His Phe Glu Glu Val Gln Lys Leu  
76 81 86 91

aag ttc gcg ctc ttt gac cag gac aag tcc agt atg cgg ctg gac gag 580  
Lys Phe Ala Leu Phe Asp Gln Asp Lys Ser Ser Met Arg Leu Asp Glu  
92 97 102 107

cat gac ttc ctg ggc cag ttc tcc tgc agc ctg ggc acg atc gtc tcc 628  
His Asp Phe Leu Gly Gln Phe Ser Cys Ser Leu Gly Thr Ile Val Ser  
108 113 118 123

agc aag aag atc act agg cct ctg ctg ctg ctg aat gac aag cct gcg 676  
Ser Lys Lys Ile Thr Arg Pro Leu Leu Leu Leu Asn Asp Lys Pro Ala  
124 129 134 139

ggg aag ggc ttg att acg atc gct gcc cag gag ctg tcc gac aac cgc 724  
Gly Lys Gly Leu Ile Thr Ile Ala Ala Gln Glu Leu Ser Asp Asn Arg  
140 145 150 155

gtc atc aca cta agc ctg gcg ggc agg agg ctg gac aag aag gac ctc 772  
Val Ile Thr Leu Ser Leu Ala Gly Arg Arg Leu Asp Lys Lys Asp Leu  
156 161 166 171

ttt ggg aag tca gac ccc ttt ctg gag ttt tat aag cca gga gac gat 820  
Phe Gly Lys Ser Asp Pro Phe Leu Glu Phe Tyr Lys Pro Gly Asp Asp  
172 177 182 187

ggc aag tgg atg ctg gtc cac agg act gag gtg atc aag tac aca ctg 868  
Gly Lys Trp Met Leu Val His Arg Thr Glu Val Ile Lys Tyr Thr Leu  
188 193 198 203

gac cct gtg tgg aag cca ttc aca gtg ccc ttg gtg tcc ctg tgt gat 916  
Asp Pro Val Trp Lys Pro Phe Thr Val Pro Leu Val Ser Leu Cys Asp

204	209	214	219	
ggg gac atg gag aag ccc atc cag gtc atg tgc tac gac tat gac aat				964
Gly Asp Met Glu Lys Pro Ile Gln Val Met Cys Tyr Asp Tyr Asp Asn				
220	225	230	235	
gac ggg ggc cat gac ttc atc ggc gag ttc cag acc tca gtg tca cag				1012
Asp Gly Gly His Asp Phe Ile Gly Glu Phe Gln Thr Ser Val Ser Gln				
236	241	246	251	
atg tgt gag gct cga gac agc gtc ccg ctg gag ttc gag tgc atc aac				1060
Met Cys Glu Ala Arg Asp Ser Val Pro Leu Glu Phe Glu Cys Ile Asn				
252	257	262	267	
ccc aag aag cag agg aag aag aag aac tat aaa aac tcg ggc atc atc				1108
Pro Lys Lys Gln Arg Lys Lys Lys Asn Tyr Lys Asn Ser Gly Ile Ile				
268	273	278	283	
atc ctg cga tcc tgc aag ata aac cga gac tac tcc ttc ctt gac tac				1156
Ile Leu Arg Ser Cys Lys Ile Asn Arg Asp Tyr Ser Phe Leu Asp Tyr				
284	289	294	299	
atc ctg gga ggc tgc cag ctc atg ttc acc gtt gga ata gac ttt aca				1204
Ile Leu Gly Gly Cys Gln Leu Met Phe Thr Val Gly Ile Asp Phe Thr				
300	305	310	315	
gcc tcc aac ggg aat ccc ctc gac cct tcc tct ttg cac tat atc aac				1252
Ala Ser Asn Gly Asn Pro Leu Asp Pro Ser Ser Leu His Tyr Ile Asn				
316	321	326	331	
cct atg ggc acc aac gaa tat ctg tcg gcc atc tgg gct gtt ggg cag				1300
Pro Met Gly Thr Asn Glu Tyr Leu Ser Ala Ile Trp Ala Val Gly Gln				
332	337	342	347	
atc att cag gac tac gac agt gat aag atg ttt cca gct ctg gga ttc				1348
Ile Ile Gln Asp Tyr Asp Ser Asp Lys Met Phe Pro Ala Leu Gly Phe				
348	353	358	363	
ggg gcc cag tta ccc cca gac tgg aag gtc tcc cat gag ttt gcc atc				1396
Gly Ala Gln Leu Pro Pro Asp Trp Lys Val Ser His Glu Phe Ala Ile				
364	369	374	379	
aac ttc aac ccc acc aac ccc ttc tgc tca ggt gtg gat ggt att gcc				1444
Asn Phe Asn Pro Thr Asn Pro Phe Cys Ser Gly Val Asp Gly Ile Ala				
380	385	390	395	
cag gcg tac tca gct tgc ctg ccc cac atc cgc ttc tac ggt cct acc				1492
Gln Ala Tyr Ser Ala Cys Leu Pro His Ile Arg Phe Tyr Gly Pro Thr				
396	401	406	411	
aat ttc tcc ccc atc gtc aac cac gtg gcc cgg ttt gcg gcc cag gcc				1540
Asn Phe Ser Pro Ile Val Asn His Val Ala Arg Phe Ala Ala Gln Ala				
412	417	422	427	
aca caa cag cgg acg gcc acg cag tac ttc atc ctc ctc atc atc acg				1588
Thr Gln Gln Arg Thr Ala Thr Gln Tyr Phe Ile Leu Leu Ile Ile Thr				
428	433	438	443	

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Asp Gly Val Ile Ser Asp Met Glu Glu Thr Arg His Ala Val Val Gln	
444 449 454 459	
gct tcc aag ctg ccc atg tcc atc atc atc gtg ggc gtg ggc aat gcg	1684
Ala Ser Lys Leu Pro Met Ser Ile Ile Ile Val Gly Val Gly Asn Ala	
460 465 470 475	
gac ttc gct gcc atg gag ttc ctg gat ggg gac agc cgc atg ctg cgc	1732
Asp Phe Ala Ala Met Glu Phe Leu Asp Gly Asp Ser Arg Met Leu Arg	
476 481 486 491	
tcc cac acg ggg gag gag gca gcc cgc gat att gtg cag ttc gtt ccc	1780
Ser His Thr Gly Glu Glu Ala Ala Arg Asp Ile Val Gln Phe Val Pro	
492 497 502 507	
ttt cga gag ttc cgc aac gca gca aaa gag acc ttg gcc aaa gct gtg	1828
Phe Arg Glu Phe Arg Asn Ala Ala Lys Glu Thr Leu Ala Lys Ala Val	
508 513 518 523	
ctg gcg gag ctg ccc caa caa gtt gtg cag tat ttc aag cat aaa aac	1876
Leu Ala Glu Leu Pro Gln Gln Val Val Gln Tyr Phe Lys His Lys Asn	
524 529 534 539	
ctg ccc ccc acc aac tcg gag ccc gcc tga g ctccagtgcc cagcagcagc	1927
Leu Pro Pro Thr Asn Ser Glu Pro Ala *	
540 545	
atgtcagctg agcctcctgc cctccccag gaacatgcac gctcactctg cttccttgtg	1987
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 <222> (314)..(1777)

<220>  
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 <223> n = a,t,c or g

<400> 1047



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gac gcc acg agg aag aag ccg aag ctg aag ccc ggg aag tgc ctg ccg	973
Asp Ala Thr Arg Lys Lys Pro Lys Leu Lys Pro Gly Lys Ser Leu Pro	
205 210 215 220	
ctg ggt gtg gag gag ctg ggg cag ctg cca ccc gtt gag ggt cct ggg	1021
Leu Gly Val Glu Glu Leu Gly Gln Leu Pro Pro Val Glu Gly Pro Gly	
221 226 231 236	
ggc cgc cct ctc cgc aag tcc ttc cgc cgg gag ctg ggc ggg act gca	1069
Gly Arg Pro Leu Arg Lys Ser Phe Arg Arg Glu Leu Gly Gly Thr Ala	
237 242 247 252	
aac gcc gcc ttg cgc cga gag tct cag ggc tcc ctc aac tcc tcc gcc	1117
Asn Ala Ala Leu Arg Arg Glu Ser Gln Gly Ser Leu Asn Ser Ser Ala	
253 258 263 268	
agc ctg gac ctt ggc ttc cta gcc ttc gtc agc agc aaa tct gag agc	1165
Ser Leu Asp Leu Gly Phe Leu Ala Phe Val Ser Ser Lys Ser Glu Ser	
269 274 279 284	
cac cgg aag agc ctt ggg agc acg gag ggt gaa agt gaa agc cgg cca	1213
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Leu Pro Gly Val Lys Ile Ser Lys Ala Arg Asp Lys Ser Pro Cys Arg	
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ggg aaa tca gca gac aag atc caa agt gag gtg gag act gtt cca gaa Gly Lys Ser Ala Asp Lys Ile Gln Ser Glu Val Glu Thr Val Pro Glu 76 81 86 91	711
gca gga cga cat gaa gag ctt tac tgg ggg caa atc tgg aaa cag att Ala Gly Arg His Glu Glu Leu Tyr Trp Gly Gln Ile Trp Lys Gln Ile 92 97 102 107	759
gca agt gat tta atc aag tat gaa gac tct atg ata agt att tct cgg Ala Ser Asp Leu Ile Lys Tyr Glu Asp Ser Met Ile Ser Ile Ser Arg 108 113 118 123	807
ttc ccc aga caa ggt gat ttg tcc tgc cag gtt agg gca gga cta tat Phe Pro Arg Gln Gly Asp Leu Ser Cys Gln Val Arg Ala Gly Leu Tyr 124 129 134 139	855
aca act cac aca gga cag aaa ttt tac caa tgt gat gag tac aaa aaa Thr Thr His Thr Gly Gln Lys Phe Tyr Gln Cys Asp Glu Tyr Lys Lys 140 145 150 155	903
tcc ttc act gat gtc ttc aac ttt gat ctt cat caa cag tta cac tca Ser Phe Thr Asp Val Phe Asn Phe Asp Leu His Gln Gln Leu His Ser 156 161 166 171	951
gga gag aag tct cat aca tgt gat gag tgt gga aaa agc ttc tgt tac Gly Glu Lys Ser His Thr Cys Asp Glu Cys Gly Lys Ser Phe Cys Tyr 172 177 182 187	999
atc tca gcc ctt cat att cat caa aga gtc cac atg gga gag aaa tgc Ile Ser Ala Leu His Ile His Gln Arg Val His Met Gly Glu Lys Cys 188 193 198 203	1047
tat aag tgt gac gtg tgt ggt aag gaa ttt agt cag agc tca cat ctt Tyr Lys Cys Asp Val Cys Gly Lys Glu Phe Ser Gln Ser Ser His Leu 204 209 214 219	1095
caa act cat cag aga gtc cac act gta gag aaa cca ttc aaa tgt gtg Gln Thr His Gln Arg Val His Thr Val Glu Lys Pro Phe Lys Cys Val 220 225 230 235	1143
gaa tgt ggg aaa ggc ttc agt cgt aga tca aca ctt act gta cat tgc Glu Cys Gly Lys Gly Phe Ser Arg Arg Ser Thr Leu Thr Val His Cys 236 241 246 251	1191
aaa tta cac tca gga gag aaa cct tac aat tgt gag gaa tgt gga agg Lys Leu His Ser Gly Glu Lys Pro Tyr Asn Cys Glu Glu Cys Gly Arg 252 257 262 267	1239
gcc ttc ata cat gct tcc cat ctt cag gaa cat cag aga att cat act Ala Phe Ile His Ala Ser His Leu Gln Glu His Gln Arg Ile His Thr 268 273 278 283	1287
ggg gag aaa cca ttc aaa tgt gat aca tgt ggt aag aac ttc cgt cgt	1335

Gly 284	Glu	Lys	Pro	Phe	Lys 289	Cys	Asp	Thr	Cys	Gly 294	Lys	Asn	Phe	Arg	Arg 299	
aga	tca	gca	ctt	aat	aat	cat	tgc	atg	gtc	cac	aca	gga	gag	aaa	cca	1383
Arg 300	Ser	Ala	Leu	Asn	Asn 305	His	Cys	Met	Val	His 310	Thr	Gly	Glu	Lys	Pro 315	
tac	aaa	tgt	gag	gac	tgt	ggc	aag	tgt	ttc	act	tgt	agc	tca	aac	ctt	1431
Tyr 316	Lys	Cys	Glu	Asp	Cys 321	Gly	Lys	Cys	Phe	Thr 326	Cys	Ser	Ser	Asn	Leu 331	
cgt	atc	cat	caa	agg	gtc	cac	aca	gga	gag	aaa	cct	tac	aag	tgt	gaa	1479
Arg 332	Ile	His	Gln	Arg	Val 337	His	Thr	Gly	Glu	Lys 342	Pro	Tyr	Lys	Cys	Glu 347	
gaa	tgt	ggc	aag	tgc	ttt	att	cag	cct	tca	caa	ttt	cag	gcc	cat	cgg	1527
Glu 348	Cys	Gly	Lys	Cys	Phe 353	Ile	Gln	Pro	Ser	Gln 358	Phe	Gln	Ala	His	Arg 363	
aga	atc	cac	act	gga	gag	aaa	cca	tac	gta	tgt	aaa	gtg	tgt	ggc	aag	1575
Arg 364	Ile	His	Thr	Gly	Glu 369	Lys	Pro	Tyr	Val	Cys 374	Lys	Val	Cys	Gly	Lys 379	
ggc	ttc	att	tac	agt	tca	agt	ttt	cag	gcc	cat	cag	gga	gtc	cac	act	1623
Gly 380	Phe	Ile	Tyr	Ser	Ser 385	Phe	Gln	Ala	His	Gln 390	Gly	Val	His	Thr	395	
gga	gag	aag	cca	tac	aaa	tgc	aat	gag	tgt	ggc	aag	agc	ttc	aga	atg	1671
Gly 396	Glu	Lys	Pro	Tyr	Lys 401	Cys	Asn	Glu	Cys	Gly 406	Lys	Ser	Phe	Arg	Met 411	
aaa	att	cat	tat	caa	gtg	cat	ctg	gta	gtc	cac	aca	ggc	gaa	aaa	ccc	1719
Lys 412	Ile	His	Tyr	Gln	Val 417	His	Leu	Val	Val	His 422	Thr	Gly	Glu	Lys	Pro 427	
tat	aaa	tgt	gaa	gta	tgt	ggc	aaa	gcc	ttc	cgt	cag	agt	tca	tat	ctt	1767
Tyr 428	Lys	Cys	Glu	Val	Cys 433	Gly	Lys	Ala	Phe	Arg 438	Gln	Ser	Ser	Tyr	Leu 443	
aaa	atc	cat	ctg	aaa	gca	cat	agt	gta	cag	aaa	cct	ttt	aag	tgt	gaa	1815
Lys 444	Ile	His	Leu	Lys	Ala 449	His	Ser	Val	Gln	Lys 454	Pro	Phe	Lys	Cys	Glu 459	
gag	tgt	ggc	cag	ggc	ttc	aat	cag	agc	tca	cga	ctt	cag	att	cac	cag	1863
Glu 460	Cys	Gly	Gln	Gly	Phe 465	Asn	Gln	Ser	Ser	Arg 470	Leu	Gln	Ile	His	Gln 475	
ctg	atc	cat	acc	ggc	gag	aaa	cca	tac	aaa	tgt	gaa	gag	tgc	gga	aag	1911
Leu 476	Ile	His	Thr	Gly	Glu 481	Lys	Pro	Tyr	Lys	Cys 486	Glu	Glu	Cys	Gly	Lys 491	
gga	ttt	agt	cgt	aga	gca	gat	ctt	aaa	att	cat	tgt	agg	atc	cac	aca	1959
Gly 492	Phe	Ser	Arg	Arg	Ala 497	Asp	Leu	Lys	Ile	His 502	Cys	Arg	Ile	His	Thr 507	
ggc	gag	aaa	cca	tat	aat	tgt	gag	gag	tgt	ggc	aag	gtc	ttc	agt	cag	2007
Gly	Glu	Lys	Pro	Tyr	Asn	Cys	Glu	Glu	Cys	Gly	Lys	Val	Phe	Ser	Gln	

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gcc tcg cat ctt cta acc cat cag aga gtt cac agt ggg gaa aaa cca				2055
Ala Ser His Leu Leu Thr His Gln Arg Val His Ser Gly Glu Lys Pro				
524	529	534	539	
ttt aaa tgt gaa gag tgt ggg aag agc ttc agt cgg agt gca cac ctt				2103
Phe Lys Cys Glu Glu Cys Gly Lys Ser Phe Ser Arg Ser Ala His Leu				
540	545	550	555	
caa gcc cat caa aaa gtc cac act gga gaa aag cca tac aaa tgt ggg				2151
Gln Ala His Gln Lys Val His Thr Gly Glu Lys Pro Tyr Lys Cys Gly				
556	561	566	571	
gag tgt gga aag ggc ttc aag tgg agc ttg aac ctt gac atg cat cag				2199
Glu Cys Gly Lys Gly Phe Lys Trp Ser Leu Asn Leu Asp Met His Gln				
572	577	582	587	
agg gtg cac aca gga gaa aaa ccc tat aca tgt ggg gag tgt ggg aag				2247
Arg Val His Thr Gly Glu Lys Pro Tyr Thr Cys Gly Glu Cys Gly Lys				
588	593	598	603	
cac ttc agt cag gcc tca agt ctc caa ctt cat cag agt gtc cac aca				2295
His Phe Ser Gln Ala Ser Ser Leu Gln Leu His Gln Ser Val His Thr				
604	609	614	619	
gga gag aaa cca tac aaa tgt gat gta tgt ggt aaa gtc ttc agt cgg				2343
Gly Glu Lys Pro Tyr Lys Cys Asp Val Cys Gly Lys Val Phe Ser Arg				
620	625	630	635	
tct tca caa tta cag tat cat agg cga gtt cac act ggg gaa aaa oct				2391
Ser Ser Gln Leu Gln Tyr His Arg Arg Val His Thr Gly Glu Lys Pro				
636	641	646	651	
tac aaa tgt gag ata tgt ggt aag agg ttc agc tgg cga tca aat ctt				2439
Tyr Lys Cys Glu Ile Cys Gly Lys Arg Phe Ser Trp Arg Ser Asn Leu				
652	657	662	667	
gta agt cat cac aaa att cat gct gct ggt aca ttt tat gaa aat gat				2487
Val Ser His His Lys Ile His Ala Ala Gly Thr Phe Tyr Glu Asn Asp				
668	673	678	683	
gag aat agt aag aac atc aga gag ttg tca gag gga gga agt tct aca				2535
Glu Asn Ser Lys Asn Ile Arg Glu Leu Ser Glu Gly Gly Ser Ser Thr				
684	689	694	699	
agg tga ttaaaaaaaaaaaaa				2555
Arg *				
700				

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1 5 10

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Pro Lys Arg Arg Ser Ala Arg Leu Ser Ala Lys Pro Pro Ala Lys Val  
17 22 27 32

gaa gcg aag ccg aaa aag gca gca gcg aag gat aaa tct tca gac aaa 144  
Glu Ala Lys Pro Lys Lys Ala Ala Ala Lys Asp Lys Ser Ser Asp Lys  
33 38 43 48

aaa gtg caa aca aaa ggg aaa agg gga gca aag gga aaa cag gcc gaa 192  
Lys Val Gln Thr Lys Gly Lys Arg Gly Ala Lys Gly Lys Gln Ala Glu  
49 54 59 64

gtg gct aac caa gaa act aaa gaa gac tta cct gcg gaa aac ggg gaa 240  
Val Ala Asn Gln Glu Thr Lys Glu Asp Leu Pro Ala Glu Asn Gly Glu  
65 70 75 80

acg aag act gag gag gag aca cca gca ggg caa aag aga gcc tgg agt 288  
Thr Lys Thr Glu Glu Glu Thr Pro Ala Gly Gln Lys Arg Ala Trp Ser  
81 86 91 96

atc tct ccc ctg cta gag ctg tgc cgg cag tgg ctg cac ggc tgt ggc 336  
Ile Ser Pro Leu Leu Glu Leu Cys Arg Gln Trp Leu His Gly Cys Gly  
97 102 107 112

tcc cag tgg acc tcc tca gcc agt gac cta gtg acc cag ctc tca ggg 384  
Ser Gln Trp Thr Ser Ser Ala Ser Asp Leu Val Thr Gln Leu Ser Gly  
113 118 123 128

cac agt ccc gtt ttc ctg tcc atg ctt gga tgg atc cag ccg agc cgt 432  
His Ser Pro Val Phe Leu Ser Met Leu Gly Trp Ile Gln Pro Ser Arg  
129 134 139 144

cag ccg cag ctg cgc gct gct ccc ccg act cgc acc ccc tcg gcg aag 480  
Gln Pro Gln Leu Arg Ala Ala Pro Pro Thr Arg Thr Pro Ser Ala Lys  
145 150 155 160

cgc tgc att tta tgt aat ttt ctg ccg ggc tgc tgg ctt gtg ggg gat 528  
Arg Cys Ile Leu Cys Asn Phe Leu Pro Gly Cys Trp Leu Val Gly Asp  
161 166 171 176

gtg gct ggg tct cgg cag cct tca gcg ccg cag acg ctc cgg caa cgc 576  
Val Ala Gly Ser Arg Gln Pro Ser Ala Pro Gln Thr Leu Arg Gln Arg  
177 182 187 192

cag cat acg agg ccc ccg ccc cag gag cgc ggg tcc ggg cgg cgt tcc 624  
Gln His Thr Arg Pro Pro Pro Gln Glu Arg Gly Ser Gly Arg Arg Ser

193	198	203	208	
cct ctg cgg gag gcg cgg cga gcc aat cct cac ttt aaa agc ttt cct				672
Pro Leu Arg Glu Ala Arg Arg Ala Asn Pro His Phe Lys Ser Phe Pro				
209	214	219	224	
gtc ctc gaa gcg agg ggt ctt ccg tgc ggg gca aga cgc act ggc ccc				720
Val Leu Glu Ala Arg Gly Leu Pro Cys Gly Ala Arg Arg Thr Gly Pro				
225	230	235	240	
aga cga ccg gtc cgt gaa atg acc ctt ccg agc gac ccg gag cgg gcg				768
Arg Arg Pro Val Arg Glu Met Thr Leu Pro Ser Asp Pro Glu Arg Ala				
241	246	251	256	
acc ttg ccc aac ccg cga ctc ggg gcc cct gcg gtc ccg cgt aga gga				816
Thr Leu Pro Asn Pro Arg Leu Gly Ala Pro Ala Val Pro Arg Arg Gly				
257	262	267	272	
ccc aga gct gta ctt cct tat cgc ccg gta cct atc ggc ggg ccc gtg				864
Pro Arg Ala Val Leu Pro Tyr Arg Pro Val Pro Ile Gly Gly Pro Val				
273	278	283	288	
tcg gag agc ggc cca ggt gct ggt gca gga gct gga gca gta cca gtt				912
Ser Glu Ser Gly Pro Gly Ala Gly Ala Gly Ala Gly Ala Val Pro Val				
289	294	299	304	
gtt gcc gaa gag att gga ctg gga ggg caa cga gca caa cag gag cta				960
Val Ala Glu Glu Ile Gly Leu Gly Gly Gln Arg Ala Gln Gln Glu Leu				
305	310	315	320	
cga gga gtt gcc tta gga ggg cca cta cag tgc att tct tcc agg gct				1008
Arg Gly Val Ala Leu Gly Gly Pro Leu Gln Cys Ile Ser Ser Arg Ala				
321	326	331	336	
gcc ctg gct tta gtg ttt ggg ccc tat gca gtt ggt gaa ggc cta tgg				1056
Ala Leu Ala Leu Val Phe Gly Pro Tyr Ala Val Gly Glu Gly Leu Trp				
337	342	347	352	
gaa aaa att gtg gtc ttg tcc aat aag cat gtg gct cct gat cat ctt				1104
Glu Lys Ile Val Val Leu Ser Asn Lys His Val Ala Pro Asp His Leu				
353	358	363	368	
ttg caa atc tgc cag cgc atc ggt cct atg ttg gat aaa gaa att cca				1152
Leu Gln Ile Cys Gln Arg Ile Gly Pro Met Leu Asp Lys Glu Ile Pro				
369	374	379	384	
ccc agt att tca aga gtc act tct tta ctt ggt gca gga agg cag tct				1200
Pro Ser Ile Ser Arg Val Thr Ser Leu Leu Gly Ala Gly Arg Gln Ser				
385	390	395	400	
ttg cta cgt aca gca aaa gac tgc agg cac aca gtt tgg aag ggc tct				1248
Leu Leu Arg Thr Ala Lys Asp Cys Arg His Thr Val Trp Lys Gly Ser				
401	406	411	416	
gcc ttt gct gct ctt cat aga gga aga cct cct gaa atg cca gtg aat				1296
Ala Phe Ala Ala Leu His Arg Gly Arg Pro Pro Glu Met Pro Val Asn				
417	422	427	432	

tat ggt tcc cca cca aat ctt gtg gag ata cat cga gga aaa caa ctc	1344
Tyr Gly Ser Pro Pro Asn Leu Val Glu Ile His Arg Gly Lys Gln Leu	
433 438 443 448	
aca ggg tgt tcc act ttt agt aca gca ttt cca gga act atg tat cag	1392
Thr Gly Cys Ser Thr Phe Ser Thr Ala Phe Pro Gly Thr Met Tyr Gln	
449 454 459 464	
cat ata aaa atg cac aga agg att ctc gga cat cta tct gct gtt tac	1440
His Ile Lys Met His Arg Arg Ile Leu Gly His Leu Ser Ala Val Tyr	
465 470 475 480	
tgt gta gca ttt gat agg aca gga cat aga atc ttt aca ggt tca gat	1488
Cys Val Ala Phe Asp Arg Thr Gly His Arg Ile Phe Thr Gly Ser Asp	
481 486 491 496	
gac tgt ttg gta aag att tgg tca aca cat aat ggc cgc ttg tta tct	1536
Asp Cys Leu Val Lys Ile Trp Ser Thr His Asn Gly Arg Leu Leu Ser	
497 502 507 512	
aca tta aga ggt cat tct gca gaa att tca gat atg gca gta aac tat	1584
Thr Leu Arg Gly His Ser Ala Glu Ile Ser Asp Met Ala Val Asn Tyr	
513 518 523 528	
gag aat aca atg att gct gcg ggg agc tgt gat aaa att att aga gtg	1632
Glu Asn Thr Met Ile Ala Ala Gly Ser Cys Asp Lys Ile Ile Arg Val	
529 534 539 544	
tgg tgc ttg aga act tgt gcc cca gtt gct gtg ctc caa gga cac aca	1680
Trp Cys Leu Arg Thr Cys Ala Pro Val Ala Val Leu Gln Gly His Thr	
545 550 555 560	
gga tca att aca tct tta cag ttt agc ccg atg gcc aaa ggc tct caa	1728
Gly Ser Ile Thr Ser Leu Gln Phe Ser Pro Met Ala Lys Gly Ser Gln	
561 566 571 576	
aga tac atg gtt tcc act ggt gct gat ggg aca gtt tgc ttt tgg caa	1776
Arg Tyr Met Val Ser Thr Gly Ala Asp Gly Thr Val Cys Phe Trp Gln	
577 582 587 592	
tgg gat tta gaa tcc tta aaa ttt agg ttc cta agt ggt agc aga gat	1824
Trp Asp Leu Glu Ser Leu Lys Phe Arg Phe Leu Ser Gly Ser Arg Asp	
593 598 603 608	
gga aca gca cgg att tgg aga ttt gag cag tta gaa tgg agg agc att	1872
Gly Thr Ala Arg Ile Trp Arg Phe Glu Gln Leu Glu Trp Arg Ser Ile	
609 614 619 624	
tta ttg gat atg gct acc aga atc tca ggg gac tta tct tcc gaa gag	1920
Leu Leu Asp Met Ala Thr Arg Ile Ser Gly Asp Leu Ser Ser Glu Glu	
625 630 635 640	
gaa agg ttt atg aaa cct aaa gta aca atg ata gct tgg aat caa aat	1968
Glu Arg Phe Met Lys Pro Lys Val Thr Met Ile Ala Trp Asn Gln Asn	
641 646 651 656	

gat agc att gtt gtc aca gct gtg aat gat cat gtc ctc aaa gtg tgg	2016
Asp Ser Ile Val Val Thr Ala Val Asn Asp His Val Leu Lys Val Trp	
657 662 667 672	
aat tct tac act gga caa ctg ctt cat aac tta atg gga cat gct gat	2064
Asn Ser Tyr Thr Gly Gln Leu Leu His Asn Leu Met Gly His Ala Asp	
673 678 683 688	
gaa gta ttt gtt ctg gag aca cat ccc ttt gat tcc aga att atg tta	2112
Glu Val Phe Val Leu Glu Thr His Pro Phe Asp Ser Arg Ile Met Leu	
689 694 699 704	
tct gca gga cat gat ggc agc ata ttt ata tgg gat att aca aaa ggt	2160
Ser Ala Gly His Asp Gly Ser Ile Phe Ile Trp Asp Ile Thr Lys Gly	
705 710 715 720	
acc aag atg aaa cat tat ttt aat atg att gaa gga caa gga cat gga	2208
Thr Lys Met Lys His Tyr Phe Asn Met Ile Glu Gly Gln Gly His Gly	
721 726 731 736	
gct gtg ttt gac tgt aag ttt tca cag gat gga cag cat ttt gcc tgt	2256
Ala Val Phe Asp Cys Lys Phe Ser Gln Asp Gly Gln His Phe Ala Cys	
737 742 747 752	
aca gat tct cat ggg cac ctt ctg ata ttt ggt ttt gga tgc agc aaa	2304
Thr Asp Ser His Gly His Leu Leu Ile Phe Gly Phe Gly Cys Ser Lys	
753 758 763 768	
cca tat gaa aag att cct gat cag atg ttc ttc cat act gac tat cga	2352
Pro Tyr Glu Lys Ile Pro Asp Gln Met Phe Phe His Thr Asp Tyr Arg	
769 774 779 784	
cca ctt att aga gat tct aat aat tat gtc tta gat gag caa act cag	2400
Pro Leu Ile Arg Asp Ser Asn Asn Tyr Val Leu Asp Glu Gln Thr Gln	
785 790 795 800	
cag gct cct cat ctt atg cct cca cca ttc ttg gta gat gta gat gga	2448
Gln Ala Pro His Leu Met Pro Pro Pro Phe Leu Val Asp Val Asp Gly	
801 806 811 816	
aat cct cat cca acc aag tat cag aga tta gta cca ggc cga gaa aat	2496
Asn Pro His Pro Thr Lys Tyr Gln Arg Leu Val Pro Gly Arg Glu Asn	
817 822 827 832	
tct gca gat gaa cat ttg att cca cag ctg ggc tat gtg gca aca agt	2544
Ser Ala Asp Glu His Leu Ile Pro Gln Leu Gly Tyr Val Ala Thr Ser	
833 838 843 848	
gat gga gag gtg att gaa caa att ata agc ctg caa acc aat gat aat	2592
Asp Gly Glu Val Ile Glu Gln Ile Ile Ser Leu Gln Thr Asn Asp Asn	
849 854 859 864	
gat gaa cgc agc cca gaa tcg agt att ctt gat gga atg ata aga cag	2640
Asp Glu Arg Ser Pro Glu Ser Ser Ile Leu Asp Gly Met Ile Arg Gln	
865 870 875 880	
ttg cag cag cag caa gat cag aga atg gga gca gat cag gat act att	2688

Leu Gln Gln Gln Gln Asp Gln Arg Met Gly Ala Asp Gln Asp Thr Ile	
881. 886 891 896	
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Pro Arg Gly Leu Ser Asn Gly Glu Glu Thr Pro Arg Arg Gly Phe Arg	
897 902 907 912	
agg ctg agc tta gac att cag tcc cct cca aat att ggt ctg cgt cgt	2784
Arg Leu Ser Leu Asp Ile Gln Ser Pro Pro Asn Ile Gly Leu Arg Arg	
913 918 923 928	
agt gga caa gtt gaa ggt gtt cgt cag atg cat caa aac gct cca cgc	2832
Ser Gly Gln Val Glu Gly Val Arg Gln Met His Gln Asn Ala Pro Arg	
929 934 939 944	
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Ser Gln Ile Ala Thr Glu Arg Asp Leu Gln Ala Trp Lys Arg Arg Val	
945 950 955 960	
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Val Val Pro Glu Val Gly Ser Asp Val Cys Cys Ser Leu Leu Tyr Ser	
961 966 971 976	
atg ctt ggc tct cac ttt cgg att cag tgg ttt tgg tat cac agt cta	2976
Met Leu Gly Ser His Phe Arg Ile Gln Trp Phe Trp Tyr His Ser Leu	
977 982 987 992	
gac aaa gga cat gta ggc gta aat atc caa att atg gta gaa gaa atc	3024
Asp Lys Gly His Val Gly Val Asn Ile Gln Ile Met Val Glu Glu Ile	
993 998 1003 1008	
gta gct ggc gag act tcc tgt gat cag agt gaa ggt tct ggt tct tca	3072
Val Ala Gly Glu Thr Ser Cys Asp Gln Ser Glu Gly Ser Gly Ser Ser	
1009 1014 1019 1024	
gaa gag gat gaa tgg aga agt gac aga aaa agt gag agt tac agc gaa	3120
Glu Glu Asp Glu Trp Arg Ser Asp Arg Lys Ser Glu Ser Tyr Ser Glu	
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Ser Ser Ser Asp Ser Ser Ser Arg Tyr Ser Asp Trp Thr Ala Asp Ala	
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Thr Arg Phe Cys Ser Ser Ser Ser Glu Asp Glu Ile Ser Thr Glu Asn Leu	
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tct cct cca aaa aga aga cga aag aga aag aaa gaa aat aag cct aag	3312
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Lys Glu Ile Trp Gln Asp Arg Arg Gln Leu Gly Ile Ala Thr Val Val	



1105	1110	1115	1120	
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Trp Asp Val Ala Met Val Leu Ser Thr His Leu Glu Met Gly Ala Val				
1121	1126	1131	1136	
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Glu Leu Leu Gly Cys Pro Ala Val Lys Leu Gly Ala Gly Ile Gly Leu				
1137	1142	1147	1152	
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Met Gly Ile Val Ala Ala Leu Leu Gly Ala His Val Thr Val Ile Asp				
1153	1158	1163	1168	
cga aaa aat ttg cgg agg atg act cca gca gag ctt gca aat atg gag				3552
Arg Lys Asn Leu Arg Arg Met Thr Pro Ala Glu Leu Ala Asn Met Glu				
1169	1174	1179	1184	
cat tta tat gaa ttt cac cct cca gtt tgg att act gac acc aca ctt				3600
His Leu Tyr Glu Phe His Pro Pro Val Trp Ile Thr Asp Thr Thr Leu				
1185	1190	1195	1200	
aga aaa tct cct ttt gtt cct caa atg ggt gat gag gta ata tat ttt				3648
Arg Lys Ser Pro Phe Val Pro Gln Met Gly Asp Glu Val Ile Tyr Phe				
1201	1206	1211	1216	
cga cag ggt cat gaa gct tat att gag gct gta aga aga aat aat att				3696
Arg Gln Gly His Glu Ala Tyr Ile Glu Ala Val Arg Arg Asn Asn Ile				
1217	1222	1227	1232	
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Tyr Glu Leu Asn Pro Asn Lys Glu Pro Trp Arg Lys Met Asp Leu Arg				
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ctc aag aaa gaa ttc cac att tta gca agt ggc aaa gat gtt ggt ttg				3792
Leu Lys Lys Glu Phe His Ile Leu Ala Ser Gly Lys Asp Val Gly Leu				
1249	1254	1259	1264	
tta aca gtt att cag att gct ggt ggg gat caa gaa ttg gtt aaa ata				3840
Leu Thr Val Ile Gln Ile Ala Gly Gly Asp Gln Glu Leu Val Lys Ile				
1265	1270	1275	1280	
gtt gga ata cga tat gaa gtt ggg ccc cct aca ctc tgt tgc cta aaa				3888
Val Gly Ile Arg Tyr Glu Val Gly Pro Pro Thr Leu Cys Cys Leu Lys				
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cta gca ttt ata gat cca gca act gga aaa ctt atg gac aaa tct ttc				3936
Leu Ala Phe Ile Asp Pro Ala Thr Gly Lys Leu Met Asp Lys Ser Phe				
1297	1302	1307	1312	
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Ser Ile Arg Tyr His Asp Met Pro Asp Val Ile Asp Phe Leu Val Leu				
1313	1318	1323	1328	
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Arg Gln Phe Tyr Asp Glu Ala Arg Gln Arg Asn Trp Gln Ser Cys Asp				
1329	1334	1339	1344	

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Tyr Ile Val Arg Trp Asp Asn Thr Glu Ile Glu Lys Leu Ser Pro Trp	
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Asp Met Glu Pro Ile Pro Asp Asn Val Asp Pro Pro Glu Glu Leu Gly	
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Ala Ser Ile Ser Val Thr Thr Asp Glu Leu Glu Lys Leu Leu Tyr Lys	
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Arg Ile Ile Ser Gly Ile Asp Gln Leu Leu Asn Leu Asp Ile Ala Ala	
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Ala Phe Ala Gly Pro Val Asp Leu Cys Thr Tyr Pro Lys Tyr Cys Thr	
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Val Val Ala Tyr Pro Thr Asp Leu Tyr Thr Ile Arg Met Arg Leu Val	
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Val His Asp Gly Lys Lys Ser Ile Arg Ala Thr Asn Tyr Val Glu Ser	
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Asn Trp Lys Lys Gln Cys Lys Glu Leu Val Asn Leu Ile Phe Gln Cys	
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Ala Arg Glu Ser Ser Ser Arg Ser Gly Leu Ser Arg Ser Ser Asn Leu	
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Arg Val Thr Arg Thr Arg Ala Ala Gln Arg Lys Thr Gly Pro Val Ser	
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Leu Ala Asn Gly Cys Gly Arg Lys Ala Thr Arg Lys Arg Val Tyr Leu	
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Val Ala Arg Lys Lys Leu Leu His Asn Ser Glu Asp Glu Gln Ser Leu	
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Lys Ser Glu Ile Glu Glu Glu Glu Leu Lys Asp Glu Asn Gln Leu Leu	
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Pro Val Ser Ser Ser His Thr Ala Gln Ser Asn Val Asp Glu Ser Glu	
1937	1942 1947 1952
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Asn Arg Asp Ser Glu Ser Glu Ser Asp Leu Arg Val Ala Arg Lys Asn	
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Trp His Ala Asn Gly Tyr Lys Ser His Thr Pro Ala Pro Ser Lys Thr	
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Lys Phe Leu Lys Ile Glu Ser Ser Glu Glu Asp Ser Lys Ser His Asp	
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2001	2006 2011 2016
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Lys Leu Lys Ala Glu Ser Ile Ser Glu Glu Ala Asp Ser Glu Pro Gly	

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gaa aaa cca aac aat ttt atg aaa gat tct gca tca caa gac aat gga Glu Lys Pro Asn Asn Phe Met Lys Asp Ser Ala Ser Gln Asp Asn Gly 2113 2118 2123 2128	6384		
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agc aaa aat gga agg aaa aaa cct ctc cat ctt gct tgt act aca gct Ser Lys Asn Gly Arg Lys Lys Pro Leu His Leu Ala Cys Thr Thr Ala 2193 2198 2203 2208	6624		
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Arg Phe Gln His Val Ile Glu Thr Pro Glu Pro Gly Lys Trp Glu Leu	
6                      11                      16                      21	

tct ggg tac gag gca gct gtg cca atc acg gag aag tca aac cca ctg	209
Ser Gly Tyr Glu Ala Ala Val Pro Ile Thr Glu Lys Ser Asn Pro Leu	
22                      27                      32                      37	

acc cag gat cta gac aaa gca gat gct gag aac att gtt cga ctg cta	257
Thr Gln Asp Leu Asp Lys Ala Asp Ala Glu Asn Ile Val Arg Leu Leu	
38                      43                      48                      53	

ggg caa tgt gat gct gag atc ttc cag gag gag ggg caa gcc ctg tcc	305
Gly Gln Cys Asp Ala Glu Ile Phe Gln Glu Glu Gly Gln Ala Leu Ser	
54                      59                      64                      69	

aca tac cag aga ctc tac agc gaa tcc att ctg acc acc atg gta cag	353
Thr Tyr Gln Arg Leu Tyr Ser Glu Ser Ile Leu Thr Thr Met Val Gln	
70                      75                      80                      85	

gtg gct ggg aaa gtt cag gaa gtg ctg aag gag cca gat ggg ggg ctg	401
Val Ala Gly Lys Val Gln Glu Val Leu Lys Glu Pro Asp Gly Gly Leu	
86                      91                      96                      101	

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Val Val Leu Ser Gly Gly Gly Thr Ser Gly Arg Met Ala Phe Leu Met	
102                      107                      112                      117	

tcg gtg tcc ttt aat cag ctg atg aaa ggt ctg gga cag aaa cct ctt	497
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Ser Val Ser Phe Asn Gln Leu Met Lys Gly Leu Gly Gln Lys Pro Leu	
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Tyr Thr Tyr Leu Ile Ala Gly Gly Asp Arg Ser Val Val Ala Ser Arg	
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Glu Gly Thr Glu Asp Ser Ala Leu His Gly Ile Glu Glu Leu Lys Lys	
150 155 160 165	
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Val Ala Ala Gly Lys Lys Arg Val Ile Val Ile Gly Ile Ser Val Gly	
166 171 176 181	
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Leu Ser Ala Pro Phe Val Ala Gly Gln Met Asp Cys Cys Met Asn Asn	
182 187 192 197	
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Ala Glu Arg Met Gln Lys Met Gln Glu Lys Gln Lys Ala Phe Val Leu	
230 235 240 245	
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Asn Pro Ala Ile Gly Pro Glu Gly Leu Ser Gly Ser Ser Arg Met Lys	
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His Lys Thr Val Asp Gln Gly Ile Ala Ala Ser Gln Arg Cys Leu Leu	
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Lys Lys Gly His Val Tyr Leu Val Gly Trp Gln Thr Leu Gly Ile Ile	
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Ala Ile Met Asp Gly Val Glu Cys Ile His Thr Phe Gly Ala Asp Phe	



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Arg Asp Val Arg Gly Phe Leu Ile Gly Asp His Ser Asp Met Phe Asn				
358	363	368	373	
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Gln Lys Ala Glu Leu Thr Asn Gln Gly Pro Gln Phe Thr Phe Ser Gln				
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gag gac ttc ccg act tcc atc ctt ccc tct ctc acg gaa atc gat act				1313
Glu Asp Phe Pro Thr Ser Ile Leu Pro Ser Leu Thr Glu Ile Asp Thr				
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Ile Val Glu Gln Val Lys Glu Lys Thr Asn His Ile Gln Ala Leu Ala				
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His Ser Thr Val Gly Gln Thr Leu Leu Ile Pro Leu Lys Lys Leu Phe				
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Pro Ser Ile Ile Ser Ile Thr Trp Pro Leu Leu Phe Phe Glu Tyr Glu				
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Met Lys Ser Val Ser Thr Ser Leu Glu Lys Lys Gly His Val Tyr Leu	
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Val Gly Trp Gln Thr Leu Gly Ile Ile Ala Ile Met Asp Gly Val Glu	
310 315 320 325	
tgc atc cac acc ttt ggt gct gat ttc cga gat gtc cgt ggc ttt ctc	1121
Cys Ile His Thr Phe Gly Ala Asp Phe Arg Asp Val Arg Gly Phe Leu	
326 331 336 341	
att ggt gat cac agt gac atg ttt aac cag aag gct gag ctc acc aac	1169
Ile Gly Asp His Ser Asp Met Phe Asn Gln Lys Ala Glu Leu Thr Asn	
342 347 352 357	
cag ggt ccc cag ttc acc ttc tcc cag gag gac ttc ccg act tcc atc	1217
Gln Gly Pro Gln Phe Thr Phe Ser Gln Glu Asp Phe Pro Thr Ser Ile	
358 363 368 373	
ctt ccc tct ctc acg gaa atc gat act gtg gtc ttc att ttc acc ctg	1265
Leu Pro Ser Leu Thr Glu Ile Asp Thr Val Val Phe Ile Phe Thr Leu	
374 379 384 389	
gat gac aac ctc acg gag gtg cag act ata gtg gag cag gtg aaa gag	1313
Asp Asp Asn Leu Thr Glu Val Gln Thr Ile Val Glu Gln Val Lys Glu	
390 395 400 405	
aag acc aac cac atc cag gcc ctg gca cac agc acc gtg ggt cag acc	1361
Lys Thr Asn His Ile Gln Ala Leu Ala His Ser Thr Val Gly Gln Thr	
406 411 416 421	
ttg ctg atc cct ctg aag aag ctc ttt ccc tcc atc atc agc atc aca	1409
Leu Leu Ile Pro Leu Lys Lys Leu Phe Pro Ser Ile Ile Ser Ile Thr	
422 427 432 437	
tgg cca ctg ctt ttc ttt gaa tat gaa ggg aac ttc atc cag aag ttc	1457
Trp Pro Leu Leu Phe Phe Glu Tyr Glu Gly Asn Phe Ile Gln Lys Phe	
438 443 448 453	
cag cgt gag cta agc acc aaa tgg gtg ctg aat aca gtg agt aca ggt	1505
Gln Arg Glu Leu Ser Thr Lys Trp Val Leu Asn Thr Val Ser Thr Gly	
454 459 464 469	
gct cat gtg ctt ctt ggt aag atc cta caa aac cac atg ttg gac ctt	1553
Ala His Val Leu Leu Gly Lys Ile Leu Gln Asn His Met Leu Asp Leu	
470 475 480 485	
cgg att agc aac tcc aag ctc ttc tgg cgg gcg ctg gcc atg ctg cag	1601
Arg Ile Ser Asn Ser Lys Leu Phe Trp Arg Ala Leu Ala Met Leu Gln	
486 491 496 501	
cgg ttc tct gga cag tcc aag gct cga tgc atc gag agc ctc ctc cga	1649
Arg Phe Ser Gly Gln Ser Lys Ala Arg Cys Ile Glu Ser Leu Leu Arg	
502 507 512 517	
gcg atc cac ttt ccc cag cca ctg tca gat gat att cgg gct gct ccc	1697

Ala Ile His Phe Pro Gln Pro Leu Ser Asp Asp Ile Arg Ala Ala Pro	
518 523 528 533	
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Ile Ser Cys His Val Gln Val Ala His Glu Lys Glu Gln Val Ile Pro	
534 539 544 549	
atc gcc ttg ctg agc ctc cta ttc cgg tgc tcg atc act gag gct cag	1793
Ile Ala Leu Leu Ser Leu Leu Phe Arg Cys Ser Ile Thr Glu Ala Gln	
550 555 560 565	
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Ala His Leu Ala Ala Pro Ser Val Cys Glu Ala Val Arg Ser Ala	
566 571 576 581	
ctt gct ggg cca ggt cag aag cgc act gcg gac ccc ctc gag atc cta	1889
Leu Ala Gly Pro Gly Gln Lys Arg Thr Ala Asp Pro Leu Glu Ile Leu	
582 587 592 597	
gag cct gac gtt cag tga acccat gtttctgggt gggtgaaagg ggcccaaccc	1943
Glu Pro Asp Val Gln *	
598 603	
tgcccacttc agcccagccc gcccaagggg acttgtgcca gcagaacatg tgggaggaag	2003
aagccccggtt tccagggcat ccgcagccca gggtagggag aaatattctc tccactttgg	2063
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Met Ser Ala Gly Ala Arg Arg Leu Gly Pro Asp Ala Arg Phe	
1 5 10	
gca ctt tcc agg ttt ctt ccc cag gga aca gag ctt gag cgg ggg gcc	155
Ala Leu Ser Arg Phe Leu Pro Gln Gly Thr Glu Leu Glu Arg Gly Ala	
15 20 25 30	
acc ccc ccg tcc tac cgg agt tct gag acc agc gag tgt ggg cct tta	203
Thr Pro Pro Ser Tyr Arg Ser Ser Glu Thr Ser Glu Cys Gly Pro Leu	
31 36 41 46	

tct gga ctc tgc ttc ctc cct ggg gac acc agg tct tgg agc aag aga	251
Ser Gly Leu Cys Phe Leu Pro Gly Asp Thr Arg Ser Trp Ser Lys Arg	
47 52 57 62	
act tgg cag gct ctc ccc atg gca gtc tta ttc ctc ctc ctg ttc cta	299
Thr Trp Gln Ala Leu Pro Met Ala Val Leu Phe Leu Leu Leu Phe Leu	
63 68 73 78	
tgt gga act ccc cag gct gca gac aac atg cag gcc atc tat gtg gcc	347
Cys Gly Thr Pro Gln Ala Ala Asp Asn Met Gln Ala Ile Tyr Val Ala	
79 84 89 94	
ttg ggg gag gca gta gag ctg cca tgt ccc tca cca tct act cta cat	395
Leu Gly Glu Ala Val Glu Leu Pro Cys Pro Ser Pro Ser Thr Leu His	
95 100 105 110	
ggg gac gaa cac ctg tca tgg ttc tgc agc cct gca gca ggc tcc ttc	443
Gly Asp Glu His Leu Ser Trp Phe Cys Ser Pro Ala Ala Gly Ser Phe	
111 116 121 126	
acc acc ctg gta gcc caa gtc caa gtg ggc agg cca gcc cca gac cct	491
Thr Thr Leu Val Ala Gln Val Gln Val Gly Arg Pro Ala Pro Asp Pro	
127 132 137 142	
gga aaa cca gga agg gaa tcc agg ctc aga ctg ctg ggg aac tat tct	539
Gly Lys Pro Gly Arg Glu Ser Arg Leu Arg Leu Leu Gly Asn Tyr Ser	
143 148 153 158	
ttg tgg ttg gag gga tcc aaa gag gaa gat gcc ggg cgg tac tgg tgc	587
Leu Trp Leu Glu Gly Ser Lys Glu Glu Asp Ala Gly Arg Tyr Trp Cys	
159 164 169 174	
gct gtg cta ggt cag cac cac aac tac cag aac tgg agg gtg tac gac	635
Ala Val Leu Gly Gln His His Asn Tyr Gln Asn Trp Arg Val Tyr Asp	
175 180 185 190	
gtc ttg gtg ctc aaa gga tcc cag tta tct gca agg gct gca gat gga	683
Val Leu Val Leu Lys Gly Ser Gln Leu Ser Ala Arg Ala Ala Asp Gly	
191 196 201 206	
tcc ccc tgc aat gtc ctc ctg tgc tct gtg gtc ccc agc aga cgc atg	731
Ser Pro Cys Asn Val Leu Leu Cys Ser Val Val Pro Ser Arg Arg Met	
207 212 217 222	
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Asp Ser Val Thr Trp Gln Glu Gly Lys Gly Pro Val Arg Gly Arg Val	
223 228 233 238	
cag tcc ttc tgg ggc agt gag gct gcc ctg ctc ttg gtg tgt cct ggg	827
Gln Ser Phe Trp Gly Ser Glu Ala Ala Leu Leu Leu Val Cys Pro Gly	
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gag ggg ctt tct gag ccc agg agc cga aga cca aga atc atc cgc tgc	875
Glu Gly Leu Ser Glu Pro Arg Ser Arg Arg Pro Arg Ile Ile Arg Cys	
255 260 265 270	

ctc atg act cac aac aaa ggg gtc agc ttt agc ctg gca gcc tcc atc	923
Leu Met Thr His Asn Lys Gly Val Ser Phe Ser Leu Ala Ala Ser Ile	
271 276 281 286	
gat gct tct cct gcc ctc tgt gcc cct tcc acg ggc tgg gac atg cct	971
Asp Ala Ser Pro Ala Leu Cys Ala Pro Ser Thr Gly Trp Asp Met Pro	
287 292 297 302	
tgg att ctg atg ctg ctg ctc aca atg ggc cag gga gtt gtc atc ctg	1019
Trp Ile Leu Met Leu Leu Leu Thr Met Gly Gln Gly Val Val Ile Leu	
303 308 313 318	
gcc ctc agc atc gtg ctc tgg agg cag agg gtc cgt ggg gct cca ggc	1067
Ala Leu Ser Ile Val Leu Trp Arg Gln Arg Val Arg Gly Ala Pro Gly	
319 324 329 334	
aga gga aac cga atg cgg tgc tac aac tgt ggt gga agc ccc agc agt	1115
Arg Gly Asn Arg Met Arg Cys Tyr Asn Cys Gly Gly Ser Pro Ser Ser	
335 340 345 350	
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Ser Cys Lys Glu Ala Val Thr Thr Cys Gly Glu Gly Arg Pro Gln Pro	
351 356 361 366	
ggc ctg gaa cag atc aag cta cct gga aac ccc cca gtg acc ttg att	1211
Gly Leu Glu Gln Ile Lys Leu Pro Gly Asn Pro Pro Val Thr Leu Ile	
367 372 377 382	
cac caa cat cca gcc tgc gtc gca gcc cat cat tgc aat caa gtg gag	1259
His Gln His Pro Ala Cys Val Ala Ala His His Cys Asn Gln Val Glu	
383 388 393 398	
aca gag tgc gtg gga gac gtg act tat cca gcc cac agg gac tgc tac	1307
Thr Glu Ser Val Gly Asp Val Thr Tyr Pro Ala His Arg Asp Cys Tyr	
399 404 409 414	
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Leu Gly Asp Leu Cys Asn Ser Ala Val Ala Ser His Val Ala Pro Ala	
415 420 425 430	
ggc att ttg gct gca gca gct acc gcc ctg acc tgt ctc ttg cca gga	1403
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Leu Trp Ser Gly *	
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 aga atg gca gat ttt ggg atc tct gct ggc cag ttt gtg gca gtg gtc 168  
 Met Ala Asp Phe Gly Ile Ser Ala Gly Gln Phe Val Ala Val Val  
 1 5 10  
 tgg gat aag tca tcc cca gtg gag gct ctg aaa ggt ctg gtg gat aag 216  
 Trp Asp Lys Ser Ser Pro Val Glu Ala Leu Lys Gly Leu Val Asp Lys  
 16 21 26 31  
 ctt caa gcg tta acc ggc aat gag ggc cgc gtg tct gtg gaa aac atc 264  
 Leu Gln Ala Leu Thr Gly Asn Glu Gly Arg Val Ser Val Glu Asn Ile  
 32 37 42 47  
 aag cag ctg ttg caa tct gcc cac aaa gaa tcc agc ttt gac att att 312  
 Lys Gln Leu Leu Gln Ser Ala His Lys Glu Ser Ser Phe Asp Ile Ile  
 48 53 58 63  
 ttg tca ggt tta gtc cca gga agc acc act ctg cac agt gct gag att 360  
 Leu Ser Gly Leu Val Pro Gly Ser Thr Thr Leu His Ser Ala Glu Ile  
 64 69 74 79  
 ttg gct gaa atc gcc cgg atc ctt cgg cct ggt gga tgt ctt ttt ctg 408  
 Leu Ala Glu Ile Ala Arg Ile Leu Arg Pro Gly Gly Cys Leu Phe Leu  
 80 85 90 95  
 aag gag cca gta gag aca gct gta gat aac aat agc aaa gtg aag aca 456  
 Lys Glu Pro Val Glu Thr Ala Val Asp Asn Asn Ser Lys Val Lys Thr  
 96 101 106 111  
 gca tct aag ctg tgt tca gcc ctg act ctt tct ggt ctt gtg gaa gtg 504  
 Ala Ser Lys Leu Cys Ser Ala Leu Thr Leu Ser Gly Leu Val Glu Val  
 112 117 122 127  
 aaa gag ctg cag cgg gag ccc cta acc cct gag gaa gta cag tct gtt 552  
 Lys Glu Leu Gln Arg Glu Pro Leu Thr Pro Glu Glu Val Gln Ser Val  
 128 133 138 143  
 cga gaa cac ctt ggt cat gaa agt gac aac ctg ctg ttt gtt cag atc 600  
 Arg Glu His Leu Gly His Glu Ser Asp Asn Leu Leu Phe Val Gln Ile  
 144 149 154 159  
 aca ggc aaa aaa cca aac ttt gaa gtg ggt tct tct agg cag ctt aag 648  
 Thr Gly Lys Lys Pro Asn Phe Glu Val Gly Ser Ser Arg Gln Leu Lys  
 160 165 170 175



ctt tcc atc acc aag aag tct tct cct tca gtg aaa cct gct gtg gac	696
Leu Ser Ile Thr Lys Lys Ser Ser Pro Ser Val Lys Pro Ala Val Asp	
176 181 186 191	
cct gct gct gcc aag ctg tgg acc ctc tca gcc aac gat atg gag gac	744
Pro Ala Ala Ala Lys Leu Trp Thr Leu Ser Ala Asn Asp Met Glu Asp	
192 197 202 207	
gac agc atg gat ctc att gac tca gat gag ctg ctg gat cca gaa gat	792
Asp Ser Met Asp Leu Ile Asp Ser Asp Glu Leu Leu Asp Pro Glu Asp	
208 213 218 223	
ttg aag aag cca gat cca gct tcc ctg cgg gct gct tct tgt ggg gaa	840
Leu Lys Lys Pro Asp Pro Ala Ser Leu Arg Ala Ala Ser Cys Gly Glu	
224 229 234 239	
ggg aaa aag agg aag gcc tgt aag aac tgc acc tgt ggc ctt gcc gaa	888
Gly Lys Lys Arg Lys Ala Cys Lys Asn Cys Thr Cys Gly Leu Ala Glu	
240 245 250 255	
gaa ctg gaa aaa gag aag tca agg gaa cag atg agc tcc caa ccc aag	936
Glu Leu Glu Lys Glu Lys Ser Arg Glu Gln Met Ser Ser Gln Pro Lys	
256 261 266 271	
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Ser Ala Cys Gly Asn Cys Tyr Leu Gly Asp Ala Phe Arg Cys Ala Ser	
272 277 282 287	
tgc ccc tac ctt ggg atg cca gcc ttc aaa cct ggg gaa aag gtg ctt	1032
Cys Pro Tyr Leu Gly Met Pro Ala Phe Lys Pro Gly Glu Lys Val Leu	
288 293 298 303	
ctg agt gat agc aat ctt cat gat gcc tag g aggttcctga catgggaccc	1083
Leu Ser Asp Ser Asn Leu His Asp Ala *	
304 309	
atctgtcctt ccagccaact cctgtccctc acatcccacc atggtggctc ctcccacctc	1143
ctctggattt gttcactctg agatctgttt gcagagtggg tgcttagcag acagagtgaa	1203
gctggctggg gggcacagtg gtgtgtagt ctgctgtgta tcaaaagacc aaggtattat	1263
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gtcaagtggc tcacaacctc cttagggcac cagaggactc actcactggt tgctgtgatg	1563
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 acatcagaag aagggttct tcaggacaca ctcccttctc ttaacatgag gtgaagaaac 2043  
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 atactcagaa cacctttncc cagntngaag cntgcattca ggtagggagt tgccaagcga 2343  
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 aga atg gca gat ttt ggg atc tct gct ggc cag ttt gtg gca gtg gtc 168  
 Met Ala Asp Phe Gly Ile Ser Ala Gly Gln Phe Val Ala Val Val  
 1 5 10  
 tgg gat aag tca tcc cca gtg gag gct ctg aaa ggt ctg gtg gat aag 216  
 Trp Asp Lys Ser Ser Pro Val Glu Ala Leu Lys Gly Leu Val Asp Lys  
 16 21 26 31  
 ctt caa gcg tta acc ggc aat gag ggc cgc gtg tct gtg gaa aac atc 264

Leu Gln Ala Leu Thr Gly Asn Glu Gly Arg Val Ser Val Glu Asn Ile	
32 37 42 47	
aag cag ctg ttg caa tgt tta gtc cca gga agc acc act ctg cac agt	312
Lys Gln Leu Leu Gln Cys Leu Val Pro Gly Ser Thr Thr Leu His Ser	
48 53 58 63	
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Ala Glu Ile Leu Ala Glu Ile Ala Arg Ile Leu Arg Pro Gly Gly Cys	
64 69 74 79	
ctt ttt ctg aag gag cca gta gag aca gct gta gat aac aat agc aaa	408
Leu Phe Leu Lys Glu Pro Val Glu Thr Ala Val Asp Asn Asn Ser Lys	
80 85 90 95	
gtg aag aca gca tct aag ctg tgt tca gcc ctg act ctt tct ggt ctt	456
Val Lys Thr Ala Ser Lys Leu Cys Ser Ala Leu Thr Leu Ser Gly Leu	
96 101 106 111	
gtg gaa gtg aaa gag ctg cag cgg gag ccc cta acc cct gag gaa gta	504
Val Glu Val Lys Glu Leu Gln Arg Glu Pro Leu Thr Pro Glu Glu Val	
112 117 122 127	
cag tct gtt cga gaa cac ctt ggt cat gaa agt gac aac ctg ctg ttt	552
Gln Ser Val Arg Glu His Leu Gly His Glu Ser Asp Asn Leu Leu Phe	
128 133 138 143	
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Val Gln Ile Thr Gly Lys Lys Pro Asn Phe Glu Val Gly Ser Ser Arg	
144 149 154 159	
cag ctt aag ctt tcc atc acc aag aag tct tct cct tca gtg aaa cct	648
Gln Leu Lys Leu Ser Ile Thr Lys Lys Ser Ser Pro Ser Val Lys Pro	
160 165 170 175	
gct gtg gac cct gct gct gcc aag ctg tgg acc ctc tca gcc aac gat	696
Ala Val Asp Pro Ala Ala Ala Lys Leu Trp Thr Leu Ser Ala Asn Asp	
176 181 186 191	
atg gag gac gac agc atg gat ctc att gac tca gat gag ctg ctg gat	744
Met Glu Asp Asp Ser Met Asp Leu Ile Asp Ser Asp Glu Leu Leu Asp	
192 197 202 207	
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Pro Glu Asp Leu Lys Lys Pro Asp Pro Ala Ser Leu Arg Ala Ala Ser	
208 213 218 223	
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Cys Gly Glu Gly Lys Lys Arg Lys Ala Cys Lys Asn Cys Thr Cys Gly	
224 229 234 239	
ctt gcc gaa gaa ctg gaa aaa gag aag tca agg gaa cag atg agc tcc	888
Leu Ala Glu Glu Leu Glu Lys Glu Lys Ser Arg Glu Gln Met Ser Ser	
240 245 250 255	
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Gln Pro Lys Ser Ala Cys Gly Asn Cys Tyr Leu Gly Asp Ala Phe Arg	

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Cys Ala Ser Cys Pro Tyr Leu Gly Met Pro Ala Phe Lys Pro Gly Glu				
272	277	282	287	
aag gtg ctt ctg agt gat agc aat ctt cat gat gcc tag gaggttcctg				1033
Lys Val Leu Leu Ser Asp Ser Asn Leu His Asp Ala *				
288	293	298		
acatgggacc catctgctcc tccagccaac tcctgtccct cacatcccac catggtggct				1093
cctcccacct cctctggatt tgttcactct gagatctgtt tgcagagtgg gtgcttagca				1153
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 <222> (414)..(1883)

<400> 1057

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gagccggcat ctctaggag ctatgcctgg tcctcggcta ggcggcttgg ggtcgcggcg	360
taactgggga gccagcctga cgccggcgga cccgcctgt gatcctggca acg atg	416
	Met
	1
gat gat gac ttg atg ttg gca ctg cgg ctt cag gag gag tgg aac ttg	464
Asp Asp Asp Leu Met Leu Ala Leu Arg Leu Gln Glu Glu Trp Asn Leu	
2 7 12 17	
cag gag gcg gag cgc gat cat gcc cag gag tcc ctg tcg cta gtg gac	512
Gln Glu Ala Glu Arg Asp His Ala Gln Glu Ser Leu Ser Leu Val Asp	
18 23 28 33	
gcg tcg tgg gag ttg gtg gac ccc aca ccg gac ttg cag gca ctg ttt	560
Ala Ser Trp Glu Leu Val Asp Pro Thr Pro Asp Leu Gln Ala Leu Phe	
34 39 44 49	
gtt cag ttt aac gac caa ttc ttc tgg ggc cag ctg gag gcc gtc gag	608
Val Gln Phe Asn Asp Gln Phe Phe Trp Gly Gln Leu Glu Ala Val Glu	
50 55 60 65	
gtg aag tgg agc gtg cga atg acc ctg tgt gct ggg ata tgc agc tat	656
Val Lys Trp Ser Val Arg Met Thr Leu Cys Ala Gly Ile Cys Ser Tyr	
66 71 76 81	
gaa ggg aag ggt gga atg tgt tcc atc cgt ctc agc gaa ccc ctt ttg	704
Glu Gly Lys Gly Gly Met Cys Ser Ile Arg Leu Ser Glu Pro Leu Leu	
82 87 92 97	
aag ttg agg cca aga aag gat ctt gta gag acc ctc ctg cat gaa atg	752
Lys Leu Arg Pro Arg Lys Asp Leu Val Glu Thr Leu Leu His Glu Met	
98 103 108 113	
ata cat gcc tat tta ttt gtc act aat aac gac aaa gac cga gaa ggg	800

Ile	His	Ala	Tyr	Leu	Phe	Val	Thr	Asn	Asn	Asp	Lys	Asp	Arg	Glu	Gly
114					119					124					129

cat	ggt	cca	gaa	ttt	tgt	aaa	cat	atg	cat	cgc	atc	aac	agc	ctg	act	848
His	Gly	Pro	Glu	Phe	Cys	Lys	His	Met	His	Arg	Ile	Asn	Ser	Leu	Thr	
130					135					140					145	

gga	gcc	aat	ata	acg	gta	tac	cat	act	ttt	cac	gat	gag	gtg	gat	gag	896
Gly	Ala	Asn	Ile	Thr	Val	Tyr	His	Thr	Phe	His	Asp	Glu	Val	Asp	Glu	
146					151					156					161	

tat	cgg	cga	cac	tgg	tgg	cgc	tgc	aat	ggg	ccg	tgc	cag	cac	agg	cca	944
Tyr	Arg	Arg	His	Trp	Trp	Arg	Cys	Asn	Gly	Pro	Cys	Gln	His	Arg	Pro	
162					167					172					177	

ccg	tat	tac	ggc	tat	gtc	aaa	cga	gct	act	aac	agg	gaa	ccc	tct	gct	992
Pro	Tyr	Tyr	Gly	Tyr	Val	Lys	Arg	Ala	Thr	Asn	Arg	Glu	Pro	Ser	Ala	
178					183					188					193	

cat	gac	tat	tgg	tgg	gct	gag	cac	cag	aaa	acc	tgt	gga	ggc	act	tac	1040
His	Asp	Tyr	Trp	Trp	Ala	Glu	His	Gln	Lys	Thr	Cys	Gly	Gly	Thr	Tyr	
194					199					204					209	

ata	aaa	atc	aag	gaa	cca	gag	aat	tac	tca	aaa	aaa	ggc	aaa	gga	aag	1088
Ile	Lys	Ile	Lys	Glu	Pro	Glu	Asn	Tyr	Ser	Lys	Lys	Gly	Lys	Gly	Lys	
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gca	aaa	cta	gga	aag	gaa	cca	gta	ttg	gcc	gca	gag	aat	aaa	gat	aaa	1136
Ala	Lys	Leu	Gly	Lys	Glu	Pro	Val	Leu	Ala	Ala	Glu	Asn	Lys	Asp	Lys	
226					231					236					241	

ccc	aac	aga	ggt	gag	gcc	cag	cta	gta	atc	cct	ttt	agt	ggg	aaa	gga	1184
Pro	Asn	Arg	Gly	Glu	Ala	Gln	Leu	Val	Ile	Pro	Phe	Ser	Gly	Lys	Gly	
242					247					252					257	

tat	gtt	cta	gga	gaa	aca	agc	aat	tta	cct	tca	cct	ggg	aaa	ctg	atc	1232
Tyr	Val	Leu	Gly	Glu	Thr	Ser	Asn	Leu	Pro	Ser	Pro	Gly	Lys	Leu	Ile	
258					263					268					273	

act	tca	cat	gcc	att	aat	aaa	acc	caa	gat	ctt	tta	aat	caa	aac	cat	1280
Thr	Ser	His	Ala	Ile	Asn	Lys	Thr	Gln	Asp	Leu	Leu	Asn	Gln	Asn	His	
274					279					284					289	

tca	gca	aat	gct	gta	aga	ctt	aat	tct	aaa	atc	aag	gtg	aaa	ttt	gaa	1328
Ser	Ala	Asn	Ala	Val	Arg	Leu	Asn	Ser	Lys	Ile	Lys	Val	Lys	Phe	Glu	
290					295					300					305	

cag	aat	ggt	tca	agt	aaa	aat	tct	cat	ctg	gtc	tcc	cct	gct	gtt	agt	1376
Gln	Asn	Gly	Ser	Ser	Lys	Asn	Ser	His	Leu	Val	Ser	Pro	Ala	Val	Ser	
306					311					316					321	

aac	agt	cac	caa	aat	gtt	cta	agc	aac	tac	ttt	cct	aga	gta	tca	ttt	1424
Asn	Ser	His	Gln	Asn	Val	Leu	Ser	Asn	Tyr	Phe	Pro	Arg	Val	Ser	Phe	
322					327					332					337	

gcc	aac	caa	aag	gct	ttc	aga	ggt	gtg	aat	gga	tct	cca	agg	ata	agt	1472
Ala	Asn	Gln	Lys	Ala	Phe	Arg	Gly	Val	Asn	Gly	Ser	Pro	Arg	Ile	Ser	

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gta aca gtt ggc aac atc cct aaa aac tca gtc tct tct agt tct cag				1520
Val Thr Val Gly Asn Ile Pro Lys Asn Ser Val Ser Ser Ser Ser Gln				
354	359	364	369	
aga agg ggt tca tct tct aag ata tcc cta aga aat tct tca aaa gta				1568
Arg Arg Gly Ser Ser Ser Lys Ile Ser Leu Arg Asn Ser Ser Ser Lys Val				
370	375	380	385	
acg gaa tca gca tct gtg atg cca tcc cag gat gtg agt ggg tct gaa				1616
Thr Glu Ser Ala Ser Val Met Pro Ser Gln Asp Val Ser Gly Ser Glu				
386	391	396	401	
gat aca ttc cca aat aaa cga cct agg cta gaa gat aag act gtt ttt				1664
Asp Thr Phe Pro Asn Lys Arg Pro Arg Leu Glu Asp Lys Thr Val Phe				
402	407	412	417	
gac aat ttt ttt atc aag aaa gag caa ata aaa agc agt ggt aat gat				1712
Asp Asn Phe Phe Ile Lys Lys Glu Gln Ile Lys Ser Ser Gly Asn Asp				
418	423	428	433	
cca aag tat agt aca acc aca gct cag aat tcc agc agt tca tcc agt				1760
Pro Lys Tyr Ser Thr Thr Thr Ala Gln Asn Ser Ser Ser Ser Ser Ser				
434	439	444	449	
cag agc aaa atg gtt aat tgc cca gtt tgt cag aat gaa gtt ctg gag				1808
Gln Ser Lys Met Val Asn Cys Pro Val Cys Gln Asn Glu Val Leu Glu				
450	455	460	465	
tct cag att aat gag cac ttg gac tgg tgc ctt gaa ggt gac agc atc				1856
Ser Gln Ile Asn Glu His Leu Asp Trp Cys Leu Glu Gly Asp Ser Ile				
466	471	476	481	
aaa gtc aaa agc gag gaa agt ctt tga aaaagggtttc aaagtcttc				1902
Lys Val Lys Ser Glu Glu Ser Leu *				
482	487			

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Phe Pro Glu Glu Phe Ser Ile Ser Ser Asn Ile Ile Gln Phe Lys Tyr	
183 188 193 198	
ttc ata aag tct gaa aat ggc act cga ctt gta cta aag gaa gac aac	1038
Phe Ile Lys Ser Glu Asn Gly Thr Arg Leu Val Leu Lys Glu Asp Asn	
199 204 209 214	
acc ttt gtc tgt acc ttg gaa act ctt aag ttt gag gct atc atg atg	1086
Thr Phe Val Cys Thr Leu Glu Thr Leu Lys Phe Glu Ala Ile Met Met	
215 220 225 230	
gct tta aag tgt ggc ttt aga ctg ctg acc agc ctg gat tgt tcc aaa	1134
Ala Leu Lys Cys Gly Phe Arg Leu Leu Thr Ser Leu Asp Cys Ser Lys	
231 236 241 246	
ggg tca att gtt cac agc gat gca ctt cat ttt atc aag taa ttacctg	1183
Gly Ser Ile Val His Ser Asp Ala Leu His Phe Ile Lys *	
247 252 257	
tgtcacgaac aaaggcaaca agcatgcagc cagcaagctt cggaaaacca cagcatcaaa	1243
gacatcccaa ataacatgcc cagctagctc tgtactacag agccctgcta ctaatcaatt	1303
actgtgagct aacggtatgt aaattctatc gctaaagatg tccttcctct ggggtgttcc	1363
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1 5 10	
acg cca cag aag tat gat ccc act ttc aaa gga ccc att tac aat agg	96
Thr Pro Gln Lys Tyr Asp Pro Thr Phe Lys Gly Pro Ile Tyr Asn Arg	

14	19	24	29	
ggc tgc acg gat atc ata tgc tgt gtg ttc ctg ctc ctg gcc att gtg				144
Gly Cys Thr Asp Ile Ile Cys Cys Val Phe Leu Leu Leu Ala Ile Val				
30	35	40	45	
ggc tac gtg gct gta ggc atc ata gcc tgg act cat gga gac cct cga				192
Gly Tyr Val Ala Val Gly Ile Ile Ala Trp Thr His Gly Asp Pro Arg				
46	51	56	61	
aag gtg atc tac ccc act gat agc cgg ggc gag ttc tgc ggg cag aag				240
Lys Val Ile Tyr Pro Thr Asp Ser Arg Gly Glu Phe Cys Gly Gln Lys				
62	67	72	77	
ggc aca aaa aac gag aac aaa ccc tat ctg ttt tat ttc aac att gtg				288
Gly Thr Lys Asn Glu Asn Lys Pro Tyr Leu Phe Tyr Phe Asn Ile Val				
78	83	88	93	
aaa tgt gcc agc ccc ctg gtt ctg ctg gaa ttc caa tgt ccc act ccc				336
Lys Cys Ala Ser Pro Leu Val Leu Leu Glu Phe Gln Cys Pro Thr Pro				
94	99	104	109	
cag atc tgc gtg gaa aaa tgc ccc gac cgc tac ctc acg tac ctg aat				384
Gln Ile Cys Val Glu Lys Cys Pro Asp Arg Tyr Leu Thr Tyr Leu Asn				
110	115	120	125	
gct cgc agc tcc cgg gac ttt gag tac tat aag cag ttc tgt gtt cct				432
Ala Arg Ser Ser Arg Asp Phe Glu Tyr Tyr Lys Gln Phe Cys Val Pro				
126	131	136	141	
ggc ttc aag aac aat aaa gga gtg gct gag gtg ctt caa gat ggt gac				480
Gly Phe Lys Asn Asn Lys Gly Val Ala Glu Val Leu Gln Asp Gly Asp				
142	147	152	157	
tgc cct gct gtc ctc atc ccc agc aaa ccc ttg gcc cgg aga tgc ttc				528
Cys Pro Ala Val Leu Ile Pro Ser Lys Pro Leu Ala Arg Arg Cys Phe				
158	163	168	173	
ccc gct atc cac gcc tac aag ggt gtc ctg atg gtg ggc aat gag acg				576
Pro Ala Ile His Ala Tyr Lys Gly Val Leu Met Val Gly Asn Glu Thr				
174	179	184	189	
acc tat gag gat ggg cat ggc tcc cgg aaa aac atc aca gac ctg gtg				624
Thr Tyr Glu Asp Gly His Gly Ser Arg Lys Asn Ile Thr Asp Leu Val				
190	195	200	205	
gag ggc gcc aag aaa gcc aat gga gtc cta gag gcg cgg caa ctc gcc				672
Glu Gly Ala Lys Lys Ala Asn Gly Val Leu Glu Ala Arg Gln Leu Ala				
206	211	216	221	
atg cgc ata ttt gaa gat tac acc gtc tct tgg tac tgg att atc ata				720
Met Arg Ile Phe Glu Asp Tyr Thr Val Ser Trp Tyr Trp Ile Ile Ile				
222	227	232	237	
ggc ctg gtc att gcc atg gcg atg agc ctc ctg ttc atc atc ctg ctt				768
Gly Leu Val Ile Ala Met Ala Met Ser Leu Leu Phe Ile Ile Leu Leu				
238	243	248	253	

cgc ttc ctg gct ggt att atg gtc tgg gtg atg atc atc atg gtg att	816
Arg Phe Leu Ala Gly Ile Met Val Trp Val Met Ile Ile Met Val Ile	
254 259 264 269	
ctg gtg ctg ggc tac gga ata ttt cac tgc tac atg gag tac tcc cga	864
Leu Val Leu Gly Tyr Gly Ile Phe His Cys Tyr Met Glu Tyr Ser Arg	
270 275 280 285	
ctg cgt ggt gag gcc ggc tct gat gtc tct ttg gtg gac ctc ggc ttt	912
Leu Arg Gly Glu Ala Gly Ser Asp Val Ser Leu Val Asp Leu Gly Phe	
286 291 296 301	
cag acg gat ttc cgg gtg tac ctg cac tta cgg cag acc tgg ttg gcc	960
Gln Thr Asp Phe Arg Val Tyr Leu His Leu Arg Gln Thr Trp Leu Ala	
302 307 312 317	
ttt atg atc att ctg agt atc ctt gaa gtc att atc atc ttg ctg ctc	1008
Phe Met Ile Ile Leu Ser Ile Leu Glu Val Ile Ile Ile Leu Leu Leu	
318 323 328 333	
atc ttt ctc cgg aag aga att ctc atc gcg att gca ctc atc aaa gaa	1056
Ile Phe Leu Arg Lys Arg Ile Leu Ile Ala Ile Ala Leu Ile Lys Glu	
334 339 344 349	
gcc agc agg gct gtg gga tac gtc atg tgc tcc ttg ctc tac cca ctg	1104
Ala Ser Arg Ala Val Gly Tyr Val Met Cys Ser Leu Leu Tyr Pro Leu	
350 355 360 365	
gtc acc ttc ttc ttg ctg tgc ctc tgc atc gcc tac tgg gcc agc act	1152
Val Thr Phe Phe Leu Leu Cys Leu Cys Ile Ala Tyr Trp Ala Ser Thr	
366 371 376 381	
gct gtc ttc ctg tcc act tcc aac gaa gcg gtc tat aag atc ttt gat	1200
Ala Val Phe Leu Ser Thr Ser Asn Glu Ala Val Tyr Lys Ile Phe Asp	
382 387 392 397	
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Asp Ser Pro Cys Pro Phe Thr Ala Lys Thr Cys Asn Pro Glu Thr Phe	
398 403 408 413	
ccc tcc tcc aat gag tcc cgc caa tgc ccc aat gcc cgt tgc cag ttc	1296
Pro Ser Ser Asn Glu Ser Arg Gln Cys Pro Asn Ala Arg Cys Gln Phe	
414 419 424 429	
gcc ttc tac ggt ggt gag tgc ggc tac cac cgg gcc ctg ctg ggc ctg	1344
Ala Phe Tyr Gly Gly Glu Ser Gly Tyr His Arg Ala Leu Leu Gly Leu	
430 435 440 445	
cag atc ttc aat gcc ttc atg ttc ttc tgg ttg gcc aac ttc gtg ctg	1392
Gln Ile Phe Asn Ala Phe Met Phe Phe Trp Leu Ala Asn Phe Val Leu	
446 451 456 461	
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Ala Leu Gly Gln Val Thr Leu Ala Gly Ala Phe Ala Ser Tyr Tyr Trp	
462 467 472 477	

gcc ctg cgc aag ccg gac gac ctg ccg gcc ttc ccg ctc ttc tct gcc	1488
Ala Leu Arg Lys Pro Asp Asp Leu Pro Ala Phe Pro Leu Phe Ser Ala	
478 483 488 493	
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Phe Gly Arg Ala Leu Arg Tyr His Thr Gly Ser Leu Ala Phe Gly Ala	
494 499 504 509	
ctc atc ctg gcc att gtg cag atc atc cgt gtg ata ctc gag tac ctg	1584
Leu Ile Leu Ala Ile Val Gln Ile Ile Arg Val Ile Leu Glu Tyr Leu	
510 515 520 525	
gat cag cgg ctg aaa gct gca gag aac aag ttt gcc aag tgc ctc atg	1632
Asp Gln Arg Leu Lys Ala Ala Glu Asn Lys Phe Ala Lys Cys Leu Met	
526 531 536 541	
acc tgt ctc aaa tgc tgc ttc tgg tgc ctg gag aag ttc atc aaa ttc	1680
Thr Cys Leu Lys Cys Cys Phe Trp Cys Leu Glu Lys Phe Ile Lys Phe	
542 547 552 557	
ctt aat agg aat gcc tac atc atg att gcc atc tac ggc acc aat ttc	1728
Leu Asn Arg Asn Ala Tyr Ile Met Ile Ala Ile Tyr Gly Thr Asn Phe	
558 563 568 573	
tgc acc tcg gcc agg aat gcc ttc ttc ctg ctc atg aga aac atc atc	1776
Cys Thr Ser Ala Arg Asn Ala Phe Phe Leu Leu Met Arg Asn Ile Ile	
574 579 584 589	
aga gtg gct gtc ctg gat aaa gtt act gac ttc ctc ttc ctg ttg ggc	1824
Arg Val Ala Val Leu Asp Lys Val Thr Asp Phe Leu Phe Leu Leu Gly	
590 595 600 605	
aaa ctt ctg atc gtt ggt agt gtg ggg atc ctg gct ttc ttc ttc ttc	1872
Lys Leu Leu Ile Val Gly Ser Val Gly Ile Leu Ala Phe Phe Phe Phe	
606 611 616 621	
acc cac cgt atc agg atc gtg cag gat aca gca cca ccc ctc aat tat	1920
Thr His Arg Ile Arg Ile Val Gln Asp Thr Ala Pro Pro Leu Asn Tyr	
622 627 632 637	
tac tgg gtt cct ata ctg acg gtg atc gtt ggc tcc tac ttg att gca	1968
Tyr Trp Val Pro Ile Leu Thr Val Ile Val Gly Ser Tyr Leu Ile Ala	
638 643 648 653	
cac ggt ttc ttc agc gtc tat ggc atg tgt gtg gac acg ctg ttc ctc	2016
His Gly Phe Phe Ser Val Tyr Gly Met Cys Val Asp Thr Leu Phe Leu	
654 659 664 669	
tgc ttc ttg gag gac ctg gag agg aat gac ggc tcg gcc gag agg cct	2064
Cys Phe Leu Glu Asp Leu Glu Arg Asn Asp Gly Ser Ala Glu Arg Pro	
670 675 680 685	
tac ttc atg tct tcc acc ctc aag aaa ctc ttg aac aag acc aac aag	2112
Tyr Phe Met Ser Ser Thr Leu Lys Lys Leu Leu Asn Lys Thr Asn Lys	
686 691 696 701	
aag gca gcg gag tcc tga agggcc cgtgctcccc acctctcaag gagtctcatg	2166

Lys Ala Ala Glu Ser \*  
702 707

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Met Phe Leu Val Gly Leu Thr Gly Gly  
1 5

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Ile Ala Ser Gly Lys Ser Ser Val Ile Gln Val Phe Gln Gln Leu Gly  
10 15 20 25

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Cys Ala Val Ile Asp Val Asp Val Met Ala Arg His Val Val Gln Pro  
26 31 36 41

gga tac cct gcc cac cgg cgc atc gta gag gtc ttc ggc act gag gtc	436
Gly Tyr Pro Ala His Arg Arg Ile Val Glu Val Phe Gly Thr Glu Val	
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Leu Leu Glu Asn Gly Asp Ile Asn Arg Lys Val Leu Gly Asp Leu Ile	
58 63 68 73	
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Phe Asn Gln Pro Asp Arg Arg Gln Leu Leu Asn Ala Ile Thr His Pro	
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Glu Ile Arg Lys Glu Met Met Lys Glu Thr Phe Lys Tyr Phe Leu Arg	
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Gly Tyr Arg Tyr Val Ile Leu Asp Ile Pro Leu Leu Phe Glu Thr Lys	
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aag ttg ctc aag tac atg aag cac acc gtg gta gta tac tgc gac cgg	676
Lys Leu Leu Lys Tyr Met Lys His Thr Val Val Tyr Cys Asp Arg	
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cgc atg gcc cgc cat gtc cta gac aac tcg ggc gag tgg agt gtc acc	820
Arg Met Ala Arg His Val Leu Asp Asn Ser Gly Glu Trp Ser Val Thr	
170 175 180 185	
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Lys Arg Gln Val Ile Leu Leu His Thr Glu Leu Glu Arg Ser Leu Glu	
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Val Asn Ser His Ser Phe Gln Asp Gly Arg Cys Pro Ser Ser Leu Ser	
423 428 433 438	
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Asn Ser Arg Thr His Lys Asn Ile Asp Ser Lys Glu Val Asp Ala Met	
439 444 449 454	



cat cag tgg gaa aat aca cct tta aaa gca gaa aga cat aga act gaa His Gln Trp Glu Asn Thr Pro Leu Lys Ala Glu Arg His Arg Thr Glu 455 460 465 470	1624
gat aag aga aaa aga gaa caa gaa agc aaa gaa gaa aat agg cat att Asp Lys Arg Lys Arg Glu Gln Glu Ser Lys Glu Glu Asn Arg His Ile 471 476 481 486	1672
aga aat gaa aaa aga gta cct aca gaa cat ttg cag aag act aat aag Arg Asn Glu Lys Arg Val Pro Thr Glu His Leu Gln Lys Thr Asn Lys 487 492 497 502	1720
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act gat aag gga gaa gtc ctt gat aat ggt gtt tct gaa gga gca gat Thr Asp Lys Gly Glu Val Leu Asp Asn Gly Val Ser Glu Gly Ala Asp 519 524 529 534	1816
aat aaa gag ctt gca atg aaa gct gag agt ggt cca aat gaa aca aaa Asn Lys Glu Leu Ala Met Lys Ala Glu Ser Gly Pro Asn Glu Thr Lys 535 540 545 550	1864
aac aag gac cta aaa ttg agt ttt atg aaa aaa ttg aac tta act ctt Asn Lys Asp Leu Lys Leu Ser Phe Met Lys Lys Leu Asn Leu Thr Leu 551 556 561 566	1912
tct cct gct aaa aag caa cct gtt tcc cag gat aat cag cat aaa ata Ser Pro Ala Lys Lys Gln Pro Val Ser Gln Asp Asn Gln His Lys Ile 567 572 577 582	1960
act gat att ccc aag tcc agt ggt gta tgt gat tca gag tct tca atg Thr Asp Ile Pro Lys Ser Ser Gly Val Cys Asp Ser Glu Ser Ser Met 583 588 593 598	2008
caa gtt aaa aca gtg gca tat gtt ccc tcc ata agt gaa cat atc ttg Gln Val Lys Thr Val Ala Tyr Val Pro Ser Ile Ser Glu His Ile Leu 599 604 609 614	2056
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tta ttg gaa cca aag gtt gct ctt cta gca gtg act gaa ccc agg atc Leu Leu Glu Pro Lys Val Ala Leu Leu Ala Val Thr Glu Pro Arg Ile 631 636 641 646	2152
ggt atc tca gaa acc aac aag gaa gac gaa aat agt ttg tta gtt agg Gly Ile Ser Glu Thr Asn Lys Glu Asp Glu Asn Ser Leu Leu Val Arg 647 652 657 662	2200
tct gtt gac aat act atg cat tgt gaa gag ccc att tgt ggt aca gag Ser Val Asp Asn Thr Met His Cys Glu Glu Pro Ile Cys Gly Thr Glu 663 668 673 678	2248
act tcc ttc cca tct cct atg gaa ata caa cag aca gaa tcc ttg ttt	2296

Thr Ser Phe Pro Ser Pro Met Glu Ile Gln Gln Thr Glu Ser Leu Phe 679	684	689	694	
cca tca aca gga atg aaa caa acc att aat aat gga agg gca gca gct Pro Ser Thr Gly Met Lys Gln Thr Ile Asn Asn Gly Arg Ala Ala Ala 695	700	705	710	2344
cct gtg gta atg gat gta tta caa aca gat gtg tct caa aac ttt ggc Pro Val Val Met Asp Val Leu Gln Thr Asp Val Ser Gln Asn Phe Gly 711	716	721	726	2392
ttg gaa ttg gat acc aaa aga aat gat aat tca gat tat tgt ggt att Leu Glu Leu Asp Thr Lys Arg Asn Asp Asn Ser Asp Tyr Cys Gly Ile 727	732	737	742	2440
tct gaa ggt atg gag atg aag gtg gca ctt tca aca aca gtg agt gaa Ser Glu Gly Met Glu Met Lys Val Ala Leu Ser Thr Thr Val Ser Glu 743	748	753	758	2488
acc act gaa agc att ttg cag cct tca att gag gaa gct gat att ttg Thr Thr Glu Ser Ile Leu Gln Pro Ser Ile Glu Glu Ala Asp Ile Leu 759	764	769	774	2536
cca ata atg ctt tca gaa gat aat aac cca aaa ttt gag cct tct gtt Pro Ile Met Leu Ser Glu Asp Asn Asn Pro Lys Phe Glu Pro Ser Val 775	780	785	790	2584
ata gtt aca cca ctg gtt gag agt aag tcg tgt cat ctg gag cct tgc Ile Val Thr Pro Leu Val Glu Ser Lys Ser Cys His Leu Glu Pro Cys 791	796	801	806	2632
tta cct aaa gag act cta gat tct tca ctt cag cag act gag tta atg Leu Pro Lys Glu Thr Leu Asp Ser Ser Leu Gln Gln Thr Glu Leu Met 807	812	817	822	2680
gac cac aga atg gca act ggt gaa aca aac tca gta tat cat gat gat Asp His Arg Met Ala Thr Gly Glu Thr Asn Ser Val Tyr His Asp Asp 823	828	833	838	2728
gat aac tcg gtt ttg agc att gac ctt aat cac ctg aga cct att cca Asp Asn Ser Val Leu Ser Ile Asp Leu Asn His Leu Arg Pro Ile Pro 839	844	849	854	2776
gaa gcc atc agt cct ctg aat agt cca gtg aga cct gta gca aaa gtt Glu Ala Ile Ser Pro Leu Asn Ser Pro Val Arg Pro Val Ala Lys Val 855	860	865	870	2824
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aaa gat gtg ttt tta cca aat tca gct cat tct acc tct aag agt cag Lys Asp Val Phe Leu Pro Asn Ser Ala His Ser Thr Ser Lys Ser Gln 887	892	897	902	2920
tct gat ctc aat aag gaa aat caa aag cca att tac aaa tct gac aaa Ser Asp Leu Asn Lys Glu Asn Gln Lys Pro Ile Tyr Lys Ser Asp Lys 897				2968

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Cys Thr Glu Ala Asp	Thr Cys Lys Asn Ser Pro Leu Asp Glu Leu Glu			
919	924	929	934	
gaa gga gaa att aga agt	gat agt gaa aca tct aaa cca caa gaa agt			3064
Glu Gly Glu Ile Arg	Ser Asp Ser Glu Thr Ser Lys Pro Gln Glu Ser			
935	940	945	950	
ttt gaa aaa aat tcc aaa cgt	aga gtg tca gct gat gtg cgg aag tca			3112
Phe Glu Lys Asn Ser	Lys Arg Arg Val Ser Ala Asp Val Arg Lys Ser			
951	956	961	966	
aag act atc cca cga cgt	ggg aaa agt act gtg tgt tta gat aaa gac			3160
Lys Thr Ile Pro Arg	Arg Gly Lys Ser Thr Val Cys Leu Asp Lys Asp			
967	972	977	982	
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Ser Arg Lys Thr His	Val Arg Ile His Gln Thr Asn Asn Lys Trp Asn			
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aaa aga cct gat aaa tct	agt aga tct tca aaa aca gag aag aaa gat			3256
Lys Arg Pro Asp Lys	Ser Ser Arg Ser Ser Lys Thr Glu Lys Lys Asp			
999	1004	1009	1014	
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Lys Val Met Ser Thr	Ser Ser Leu Glu Lys Ile Val Pro Ile Ile Ala			
1015	1020	1025	1030	
gta ccc tct tct gaa caa	gag atc atg cac atg tta cga atg ata aga			3352
Val Pro Ser Ser Glu	Gln Glu Ile Met His Met Leu Arg Met Ile Arg			
1031	1036	1041	1046	
aaa cat gta aga aaa aat	tat atg aaa ttc aag gca aaa ttt tca tta			3400
Lys His Val Arg Lys	Asn Tyr Met Lys Phe Lys Ala Lys Phe Ser Leu			
1047	1052	1057	1062	
ata caa ttt cac aga att	att gag tca gca att ttg agt ttt aca tct			3448
Ile Gln Phe His Arg	Ile Ile Glu Ser Ala Ile Leu Ser Phe Thr Ser			
1063	1068	1073	1078	
tta att aaa cat ctc aac	tta cac aaa atc tct aag tca gtg act acc			3496
Leu Ile Lys His Leu	Asn Leu His Lys Ile Ser Lys Ser Val Thr Thr			
1079	1084	1089	1094	
tta cag aag aat ctc tgt	gat att ata gag tct aaa ctt aag caa gtt			3544
Leu Gln Lys Asn Leu	Cys Asp Ile Ile Glu Ser Lys Leu Lys Gln Val			
1095	1100	1105	1110	
aaa aag aat ggc ata gtt	gat cgt tta ttt gaa cag caa cta cca gat			3592
Lys Lys Asn Gly Ile	Val Asp Arg Leu Phe Glu Gln Gln Leu Pro Asp			
1111	1116	1121	1126	
atg aaa aaa aaa ttg	tgg aag ttt gta gat gac caa ctt gat tat ttg			3640
Met Lys Lys Lys Leu	Trp Lys Phe Val Asp Asp Gln Leu Asp Tyr Leu			
1127	1132	1137	1142	

ttt gca aag ctt aag aaa atc tta gta tgt gat tcc aaa agc ttt gga	3688
Phe Ala Lys Leu Lys Lys Ile Leu Val Cys Asp Ser Lys Ser Phe Gly	
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aga gat agt gat gaa ggc aaa ctt gaa aaa aca agt aaa cag aat gca	3736
Arg Asp Ser Asp Glu Gly Lys Leu Glu Lys Thr Ser Lys Gln Asn Ala	
1159 1164 1169 1174	
cag tat tca aat agt cag aaa agg agt gtg gac aac tcc aac aga gaa	3784
Gln Tyr Ser Asn Ser Gln Lys Arg Ser Val Asp Asn Ser Asn Arg Glu	
1175 1180 1185 1190	
ttg ctg aaa gaa aaa tta tca aaa tca gaa gac cct gtt cat tat aag	3832
Leu Leu Lys Glu Lys Leu Ser Lys Ser Glu Asp Pro Val His Tyr Lys	
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Ser Leu Val Gly Cys Lys Lys Ser Glu Glu Asn Tyr Gln Asp Gln Asn	
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Asn Ser Ser Ile Asn Thr Val Lys His Asp Ile Lys Lys Asn Phe Asn	
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Ile Cys Phe Asp Asn Ile Lys Asn Ser Gln Ser Glu Glu Arg Ser Leu	
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Ser Ile Glu Asp Ala Gln Thr Ser Gln His Ala Thr Leu Lys Pro Glu	
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Arg Ser Phe Glu Ile Leu Thr Glu Gln Gln Ala Ser Ser Leu Thr Phe	
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1319 1324 1329 1334	
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Cys Glu Ser Ile Pro Ala Cys Thr Thr Glu Glu Leu Val Ser Gly Val	
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Val Phe Lys Ser Val Glu Glu Leu Glu Asn Ser Asn Lys Asn Val Asp	
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Glu Thr Lys Val Pro Glu Ser Ile Glu Glu Leu Pro Ser Met Glu Glu	
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Ile Ser His Ser Val Gly Glu His Leu Pro Asn Thr Tyr Val Asp Leu	
1671 1676 1681 1686	
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1687 1692 1697 1702	
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Val Thr Val Leu His Ile Asp Gln Leu Gly Cys Ser Gly Gly Asn Leu	
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Glu Gly Asn His Pro Ala Leu Ala Val Glu Asp Leu Gly Cys Gly Val	
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ata cag gta gat gaa gat aat tgt aag gaa gaa aag gca caa gtg gca	5560
Ile Gln Val Asp Glu Asp Asn Cys Lys Glu Glu Lys Ala Gln Val Ala	
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Asn Arg Pro Leu Lys Cys Ile Val Glu Glu Thr Tyr Ile Asp Leu Thr	
1783 1788 1793 1798	
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Thr Glu Ser Pro Ser Ser Cys Glu Val Lys Lys Asp Glu Leu Lys Ser	
1799 1804 1809 1814	
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Glu Pro Gly Ser Asn Cys Asp Asn Ser Glu Leu Pro Gly Thr Leu His	

1815	1820	1825	1830	
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Asn Ser His Lys Lys Arg Arg Asn Ile Ser Asp Leu Asn His Pro His				
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Lys Lys Gln Arg Lys Glu Thr Asp Leu Thr Asn Lys Glu Lys Thr Lys				
1847	1852	1857	1862	
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Lys Pro Thr Gln Asp Ser Cys Glu Asn Thr Glu Ala His Gln Lys Lys				
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gcc agt aag aag aag gcc cct cct gtg act aaa gat ccc tca tca tta				5896
Ala Ser Lys Lys Lys Ala Pro Pro Val Thr Lys Asp Pro Ser Ser Leu				
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Lys Ala Thr Pro Gly Ile Lys Asp Ser Ser Ala Ala Leu Ala Thr Ser				
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Thr Ser Leu Ser Ala Lys Asn Val Ile Lys Lys Lys Gly Glu Ile Ile				
1911	1916	1921	1926	
att tta tgg aca aga aat gat gac cgg gaa att tta ttg gag tgt cag				6040
Ile Leu Trp Thr Arg Asn Asp Asp Arg Glu Ile Leu Leu Glu Cys Gln				
1927	1932	1937	1942	
aaa aga ggg cca tca ttt aaa aca ttt gca tat tta gcc gcc aag ttg				6088
Lys Arg Gly Pro Ser Phe Lys Thr Phe Ala Tyr Leu Ala Ala Lys Leu				
1943	1948	1953	1958	
gat aaa aat cca aat cag gtc tca gaa aga ttc cag cag cta atg aag				6136
Asp Lys Asn Pro Asn Gln Val Ser Glu Arg Phe Gln Gln Leu Met Lys				
1959	1964	1969	1974	
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Leu Phe Glu Lys Ser Lys Cys Arg *				
1975	1980			
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Gln Thr Ile Ser Lys Lys Thr Val Arg Ser Ile Gln Glu Ala Pro Val	
170 175 180 185	
agt gaa gat ctt gta atc agg tta cgt cga ccc cct cta aga tac cca	1047
Ser Glu Asp Leu Val Ile Arg Leu Arg Arg Pro Pro Leu Arg Tyr Pro	
186 191 196 201	
aga tat gaa gcc acc agt gtc caa cag aag gtc aat <sup>5</sup> ttc tct gaa gaa	1095
Arg Tyr Glu Ala Thr Ser Val Gln Gln Lys Val Asn Phe Ser Glu Glu	
202 207 212 217	
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Ser Gln Asn Phe Thr Ala His Asp Lys Gln Pro Ser Val Leu Ser Ser	
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Gly Tyr Gln Lys Thr Pro Gln Glu Trp Ala Pro His Thr Ala Arg Ile	
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Arg Thr Arg Met Gln Asn Asp Ser Ile Leu Lys Ser Glu Leu Gly Asn	
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Gln Ser Pro Ser Thr Ser Ser Arg Gln Val Thr Gly Gln Pro Gln Asn	
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Ala Ser Phe Val Lys Arg Asn Arg Trp Trp Leu Leu Pro Leu Ile Ala	
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346 351 356 361	
acc act gct gtt caa gag ttc cag aac cag atg aat caa ctt aag aat	1575
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Leu Glu Lys His Leu Asn Ser Ser His Pro Arg Ser Gln Pro Ala Ile	
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Lys Leu Glu Val Asp Gln Glu Leu Ser Asn Gly Phe Lys Asn Gly Gln	
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474 479 484 489	
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gacagaattc agagctcttt ttgaaagaac tagtttcttt ttaaagaagt taagtgctta	2319
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Gly Glu Ser Ala Ser Asp Gly His Ile Ser Cys Pro Lys Pro Ser Ile
  8                               13                               18                               23

atc ggc aat gct ggt gaa aaa agt ctc tca gaa gat gca aaa aag aag      750
Ile Gly Asn Ala Gly Glu Lys Ser Leu Ser Glu Asp Ala Lys Lys Lys
  24                               29                               34                               39

aag aaa tca aat agg aag gag gat gat gtc atg gcc tca gga act gtc      798
Lys Lys Ser Asn Arg Lys Glu Asp Asp Val Met Ala Ser Gly Thr Val
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aaa cga cac cta aaa aca tct gga gaa tgt gaa cga aaa act aag aaa      846
Lys Arg His Leu Lys Thr Ser Gly Glu Cys Glu Arg Lys Thr Lys Lys
  56                               61                               66                               71

tcc ctg gag tta tcc aaa gaa gac ctc atc caa cta ctc agt ata atg      894
Ser Leu Glu Leu Ser Lys Glu Asp Leu Ile Gln Leu Leu Ser Ile Met
  72                               77                               82                               87

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Glu Gly Glu Leu Gln Ala Arg Glu Asp Val Ile His Met Leu Lys Thr	
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Glu Lys Thr Lys Pro Glu Val Leu Glu Ala His Tyr Gly Ser Ala Glu	
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Pro Glu Lys Val Leu Arg Val Leu His Arg Asp Ala Ile Leu Ala Gln	
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Glu Lys Ser Ile Gly Glu Asp Val Tyr Glu Lys Pro Ile Ser Glu Leu	
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Asp Arg Leu Glu Glu Lys Gln Lys Glu Thr Tyr Arg Arg Met Leu Glu	
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Gln Leu Leu Leu Ala Glu Lys Cys His Arg Arg Thr Val Tyr Glu Leu	
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gag aac gag aag cat aaa cac act gac tac atg aac aag agc gac gac	1230
Glu Asn Glu Lys His Lys His Thr Asp Tyr Met Asn Lys Ser Asp Asp	
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Phe Thr Asn Leu Leu Glu Gln Glu Arg Glu Arg Leu Lys Lys Leu Leu	
200 205 210 215	
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232 237 242 247	
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Leu Met Leu Val Asp Glu Arg Gln Met His Ile Glu Gln Leu Gly Leu	
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Gln Ser Gln Lys Val Gln Asp Leu Thr Gln Lys Leu Arg Glu Glu Glu	
264 269 274 279	
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280 285 290 295	
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Leu Leu Lys Leu Glu Val Asp Phe Glu His Lys Ala Ser Arg Phe Ser	
296 301 306 311	

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Gln Glu His Glu Glu Met Asn Ala Lys Leu Ala Asn Gln Glu Ser His	
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Asn Arg Gln Leu Arg Leu Lys Leu Val Gly Leu Thr Gln Arg Ile Glu	
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Glu Leu Glu Glu Thr Asn Lys Asn Leu Gln Lys Ala Glu Glu Glu Leu	
344 349 354 359	
caa gaa tta aga gat aaa att gcc aaa gga gaa tgt gga aac tct agc	1758
Gln Glu Leu Arg Asp Lys Ile Ala Lys Gly Glu Cys Gly Asn Ser Ser	
360 365 370 375	
ctc atg gca gaa gtg gaa aat ctt cga aag cgt gtg ctt gaa atg gaa	1806
Leu Met Ala Glu Val Glu Asn Leu Arg Lys Arg Val Leu Glu Met Glu	
376 381 386 391	
ggt aaa gat gag gag atc act aaa act gaa tcc cag tgt agg gaa ttg	1854
Gly Lys Asp Glu Glu Ile Thr Lys Thr Glu Ser Gln Cys Arg Glu Leu	
392 397 402 407	
agg aag aag ctg caa gag gaa gaa cac cat agt aag gag ctc aga ctt	1902
Arg Lys Lys Leu Gln Glu Glu Glu His His Ser Lys Glu Leu Arg Leu	
408 413 418 423	
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Glu Val Glu Lys Leu Gln Lys Arg Met Ser Glu Leu Glu Lys Leu Glu	
424 429 434 439	
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440 445 450 455	
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Val Val Lys Ser Arg Val Lys Glu Leu Glu Cys Ser Glu Ser Arg Leu	
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Glu Lys Ala Glu Leu Ser Leu Lys Asp Asp Leu Thr Lys Leu Lys Ser	
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Glu Lys Ser Ser Glu Leu Ser Cys Ser Val Asp Leu Leu Lys Lys Arg	
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616 621 626 631	
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Leu Thr Leu Glu Ile Glu Arg Leu Lys Lys Arg Leu Gln Gln Leu Glu	
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Val Val Glu Gly Asp Leu Met Lys Thr Glu Asp Glu Tyr Asp Gln Leu	
648 653 658 663	
gaa cag aaa ttt aga act gag cag gat aag gct aac ttc ctc tct caa	2670
Glu Gln Lys Phe Arg Thr Glu Gln Asp Lys Ala Asn Phe Leu Ser Gln	
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caa cta gag gag atc aag cac caa att gcc aag aat aaa gca ata gag	2718
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Lys Gly Glu Val Val Ser Gln Glu Ala Glu Leu Arg His Arg Phe Arg	
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712 717 722 727	
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Lys Glu Lys Ile His Glu Leu Met Asn Lys Glu Asp Gln Leu Ser Gln	
728 733 738 743	
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Leu Gln Val Asp Tyr Ser Val Leu Gln Gln Arg Phe Met Glu Glu Glu	
744 749 754 759	
aat aag aac aaa aac atg ggg cag gag gtt ctc aat ctg acc aaa gag	2958
Asn Lys Asn Lys Asn Met Gly Gln Glu Val Leu Asn Leu Thr Lys Glu	

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Leu Glu Leu Ser Lys Arg Tyr Ser Arg Ala Leu Arg Pro Ser Val Asn				
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gga aga aga atg gtg gat gtt cct gtg acg tca act gga gtc caa act				3054
Gly Arg Arg Met Val Asp Val Pro Val Thr Ser Thr Gly Val Gln Thr				
792	797	802	807	
gat gca gtc agc ggt gaa gca gca gag gaa gaa acg cca gct gta ttc				3102
Asp Ala Val Ser Gly Glu Ala Ala Glu Glu Glu Thr Pro Ala Val Phe				
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Ile Arg Lys Ser Phe Gln Glu Glu Asn His Ile Met Ser Asn Leu Arg				
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Gln Val Gly Leu Lys Lys Pro Val Glu Arg Ser Ser Val Leu Asp Arg				
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Tyr Pro Pro Ala Ala Asn Glu Leu Thr Met Arg Lys Ser Trp Ile Pro				
856	861	866	871	
tgg atg aga aag agg gaa aac ggc ccc tcc atc act cag gag aaa ggg				3294
Trp Met Arg Lys Arg Glu Asn Gly Pro Ser Ile Thr Gln Glu Lys Gly				
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ccc cga aca aat tcc agt cca ggg cac cca gga gag gta gtc ctt tca				3342
Pro Arg Thr Asn Ser Ser Pro Gly His Pro Gly Glu Val Val Leu Ser				
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Pro Lys Gln Gly Gln Pro Leu His Ile Arg Val Thr Pro Asp His Glu				
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Asn Ser Thr Ala Thr Leu Glu Ile Thr Ser Pro Thr Ser Glu Glu Phe				
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Phe Ser Ser Thr Thr Val Ile Pro Thr Leu Gly Asn Gln Lys Pro Arg				
936	941	946	951	
ata acc att att cca tca cca aac gtt atg cct caa aaa caa aaa agt				3534
Ile Thr Ile Ile Pro Ser Pro Asn Val Met Pro Gln Lys Gln Lys Ser				
952	957	962	967	
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Gly Asp Thr Thr Leu Gly Pro Glu Arg Ala Met Ser Pro Val Thr Ile				
968	973	978	983	
act aca ttt tcc aga gag aag act cca gaa agt gga aga ggc gca ttt				3630
Thr Thr Phe Ser Arg Glu Lys Thr Pro Glu Ser Gly Arg Gly Ala Phe				
984	989	994	999	





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 gggcgcatcg cgggcgggca gggcctgaag tgcagct atg ttt cca gtg ttc tct 235  
 Met Phe Pro Val Phe Ser  
 1  
 ggc tgt ttc caa gag cta caa gaa aag aat aaa tct ctg gag ttg gtg 283  
 Gly Cys Phe Gln Glu Leu Gln Glu Lys Asn Lys Ser Leu Glu Leu Val  
 7 12 17 22  
 tcc ttt gag gag gta gct gtg cac ttc acc tgg gag gag tgg cag gac 331  
 Ser Phe Glu Glu Val Ala Val His Phe Thr Trp Glu Glu Trp Gln Asp  
 23 28 33 38  
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 Leu Asp Asp Ala Gln Arg Thr Leu Tyr Arg Asp Val Met Leu Glu Thr  
 39 44 49 54  
 tac agc agc ctg gta tca ttg ggg cat tgc att acc aaa cct gag atg 427  
 Tyr Ser Ser Leu Val Ser Leu Gly His Cys Ile Thr Lys Pro Glu Met

55	60	65	70	
atc ttc aag cta gag caa gga gca gag cca tgg ata gta gaa gaa acc				475
Ile Phe Lys Leu Glu Gln Gly Ala Glu Pro Trp Ile Val Glu Glu Thr				
71	76	81	86	
cta aac ctg aga ctt tca ggt gga agc aag aag caa gtt ttc tca ggt				523
Leu Asn Leu Arg Leu Ser Gly Gly Ser Lys Lys Gln Val Phe Ser Gly				
87	92	97	102	
att tgc cac aag agc ctg gtg gag ctc caa gag gtt cat ttg gtc tga				571
Ile Cys His Lys Ser Leu Val Glu Leu Gln Glu Val His Leu Val *				
103	108	113	118	
tggaattcagg taacattgaa attctgatag tttcaaaatc ttttatctcc aggtttgagc				631
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Met Ser Asn Pro Phe Leu Lys Gln Val Phe Asn Lys Asp Lys Thr Phe				
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Arg Pro Lys Arg Lys Phe Glu Pro Gly Thr Gln Arg Phe Glu Leu His				
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aag aag gcg cag gcg tcg ctg aac gcc ggg ctg gac ctg cgg ctg gcc				381
Lys Lys Ala Gln Ala Ser Leu Asn Ala Gly Leu Asp Leu Arg Leu Ala				
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gtg cag ttg ccc ccg ggc gag gac ctg aac gac tgg gtg gct gtt cac				429
Val Gln Leu Pro Pro Gly Glu Asp Leu Asn Asp Trp Val Ala Val His				
49	54	59	64	
gtg gtg gac ttc ttt aac cgc gtc aac ctc atc tac ggc acc atc agc				477

Val	Val	Asp	Phe	Phe	Asn	Arg	Val	Asn	Leu	Ile	Tyr	Gly	Thr	Ile	Ser
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Asp	Gly	Cys	Thr	Glu	Gln	Ser	Cys	Pro	Val	Met	Ser	Gly	Gly	Pro	Lys	
81					86					91					96	

tat	gag	tac	cgc	tgg	cag	gat	gag	cat	aag	ttc	cgg	aag	ccc	acg	gca	573
Tyr	Glu	Tyr	Arg	Trp	Gln	Asp	Glu	His	Lys	Phe	Arg	Lys	Pro	Thr	Ala	
97					102					107					112	

ctc	tcc	gcg	ccc	agg	tac	atg	gac	ctg	ctg	atg	gac	tgg	atc	gag	gcg	621
Leu	Ser	Ala	Pro	Arg	Tyr	Met	Asp	Leu	Leu	Met	Asp	Trp	Ile	Glu	Ala	
113					118					123					128	

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Gln	Ile	Asn	Asn	Glu	Asp	Leu	Phe	Pro	Thr	Asn	Val	Gly	Thr	Pro	Phe	
129					134					139					144	

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Pro	Lys	Asn	Phe	Leu	Gln	Thr	Val	Arg	Lys	Ile	Leu	Ser	Arg	Leu	Phe	
145					150					155					160	

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Arg	Val	Phe	Val	His	Val	Tyr	Ile	His	His	Phe	Asp	Arg	Ile	Ala	Gln	
161					166					171					176	

atg	ggc	tcc	gag	gcc	cac	gtg	aac	acc	tgc	tac	aag	cac	ttc	tac	tat	813
Met	Gly	Ser	Glu	Ala	His	Val	Asn	Thr	Cys	Tyr	Lys	His	Phe	Tyr	Tyr	
177					182					187					192	

ttc	gtc	aag	gag	ttc	ggc	ctc	atc	gac	acc	aag	gag	ctg	gag	cca	ctg	861
Phe	Val	Lys	Glu	Phe	Gly	Leu	Ile	Asp	Thr	Lys	Glu	Leu	Glu	Pro	Leu	
193					198					203					208	

aaa	gaa	atg	acc	gcc	cgg	atg	tgc	cac	tga	g	agccccgcgg	gtctcccggt				912
Lys	Glu	Met	Thr	Ala	Arg	Met	Cys	His	*							
209					214											

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cactgtgttt	ttaaaccact	tccactttcc	aggaggctgg	atggcttcca	gggtcactcc											1212
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gcctcctaca	tgtctcccg	tggggaggca	agaggctgag	gggcttccga	gcccctgaga											1392
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Met Asn Tyr Glu Leu Asn Phe Lys Arg Glu Met Pro Asn Ile Lys  
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Ser Leu Gly Leu Thr Asn Leu Asn Phe Leu Leu Lys Arg Leu Ser Ser  
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Asn Pro Tyr Leu Ile Arg Arg Ile Glu Glu Leu Asn Lys Thr Ala Ser  
48 53 58 63  
ggc aac gtg gaa gca aaa gta gta tgc ttt tat aga cga cgt gat att 480  
Gly Asn Val Glu Ala Lys Val Val Cys Phe Tyr Arg Arg Arg Asp Ile  
64 69 74 79  
tcc aac aca ctt ata atg ctc gca gat aag cat gct aaa gaa att gag 528  
Ser Asn Thr Leu Ile Met Leu Ala Asp Lys His Ala Lys Glu Ile Glu  
80 85 90 95

gaa gaa tct gaa aca aca gtt gag gct gac ttg acc gat aag cag aaa Glu Glu Ser Glu Thr Thr Val Glu Ala Asp Leu Thr Asp Lys Gln Lys 96 101 106 111	576
cat cag ttg aaa cat agg gaa ctc ttt ttg tca cgc cag tat gaa tct His Gln Leu Lys His Arg Glu Leu Phe Leu Ser Arg Gln Tyr Glu Ser 112 117 122 127	624
ctg ccc gca aca cat atc agg gga aag tgc agt gtt gcc ctt ctg aat Leu Pro Ala Thr His Ile Arg Gly Lys Cys Ser Val Ala Leu Leu Asn 128 133 138 143	672
gag aca gaa tca gta ttg tca tat ctt gat aag gag <sup>24</sup> gat acc ttc ttc Glu Thr Glu Ser Val Leu Ser Tyr Leu Asp Lys Glu Asp Thr Phe Phe 144 149 154 159	720
tac tca ttg gtc tat gac ccc tca ttg aaa aca cta tta gct gac aaa Tyr Ser Leu Val Tyr Asp Pro Ser Leu Lys Thr Leu Leu Ala Asp Lys 160 165 170 175	768
ggt gaa atc aga gtg gga cct aga tat caa gca gac att cca gaa atg Gly Glu Ile Arg Val Gly Pro Arg Tyr Gln Ala Asp Ile Pro Glu Met 176 181 186 191	816
ctg tta gaa gga gaa tca gat gag agg gaa caa tca aaa ttg gaa gtt Leu Leu Glu Gly Glu Ser Asp Glu Arg Glu Gln Ser Lys Leu Glu Val 192 197 202 207	864
aaa gtt tgg gat cca aat agc cca ctt acg gat cga cag att gac cag Lys Val Trp Asp Pro Asn Ser Pro Leu Thr Asp Arg Gln Ile Asp Gln 208 213 218 223	912
ttt tta gtt gta gca cgt gct gtt ggg aca ttc gcc aga gcc ctg gat Phe Leu Val Val Ala Arg Ala Val Gly Thr Phe Ala Arg Ala Leu Asp 224 229 234 239	960
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gct tcc cga gac atc acc ttg ttt cac gct atg gat aca ttg tat aga Ala Ser Arg Asp Ile Thr Leu Phe His Ala Met Asp Thr Leu Tyr Arg 256 261 266 271	1056
cac agc tat gat ttg agc agt gcc att agt gtc tta gta cca ctc gga His Ser Tyr Asp Leu Ser Ser Ala Ile Ser Val Leu Val Pro Leu Gly 272 277 282 287	1104
gga cct gtt tta tgc aga gat gaa atg gag gaa tgg tca gcc tct gaa Gly Pro Val Leu Cys Arg Asp Glu Met Glu Glu Trp Ser Ala Ser Glu 288 293 298 303	1152
gct agc tta ttt gaa gag gca ctg gaa aaa tat ggc aaa gac ttc/aat Ala Ser Leu Phe Glu Glu Ala Leu Glu Lys Tyr Gly Lys Asp Phe Asn 304 309 314 319	1200

gac ata cgg caa gat ttt ctt cct tgg aaa tca ttg act agc atc att Asp Ile Arg Gln Asp Phe Leu Pro Trp Lys Ser Leu Thr Ser Ile Ile 320 325 330 335	1248
gaa tat tat tac atg tgg aaa act act gac aga tat gtg caa cag aaa Glu Tyr Tyr Tyr Met Trp Lys Thr Thr Asp Arg Tyr Val Gln Gln Lys 336 341 346 351	1296
cgt cta aaa gca gca gaa gct gag agt aaa ctg aaa caa gta tat atc Arg Leu Lys Ala Ala Glu Ala Glu Ser Lys Leu Lys Gln Val Tyr Ile 352 357 362 367	1344
cca acc tac aaa cca aat ccc aac caa ata tcc act agt aat ggg aag Pro Thr Tyr Lys Pro Asn Pro Asn Gln Ile Ser Thr Ser Asn Gly Lys 368 373 378 383	1392
cct ggt gct gtg aat gga gct gtg ggg acc acg ttc cag cct cag aat Pro Gly Ala Val Asn Gly Ala Val Gly Thr Thr Phe Gln Pro Gln Asn 384 389 394 399	1440
cct ctc tta ggg aga gcc tgt gag agc tgc tat gct aca cag tct cac Pro Leu Leu Gly Arg Ala Cys Glu Ser Cys Tyr Ala Thr Gln Ser His 400 405 410 415	1488
cag tgg tat tct tgg ggc cca cct aat atg cag tgt aga tta tgt gca Gln Trp Tyr Ser Trp Gly Pro Pro Asn Met Gln Cys Arg Leu Cys Ala 416 421 426 431	1536
att tgt tgg ctt tat tgg aaa aaa tat gga ggc ttg aaa atg ccc acc Ile Cys Trp Leu Tyr Trp Lys Lys Tyr Gly Gly Leu Lys Met Pro Thr 432 437 442 447	1584
cag tca gaa gaa gag aag tta tct cct agc cca act aca gag gac cct Gln Ser Glu Glu Glu Lys Leu Ser Pro Ser Pro Thr Thr Glu Asp Pro 448 453 458 463	1632
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cga aac act ggg agt cca aag tct gca gtg aag acc cgc caa gct ttc Arg Asn Thr Gly Ser Pro Lys Ser Ala Val Lys Thr Arg Gln Ala Phe 480 485 490 495	1728
ttc ctt cat act aca tat ttc aca aaa ttt gct cgt cag gtc tgc aaa Phe Leu His Thr Thr Tyr Phe Thr Lys Phe Ala Arg Gln Val Cys Lys 496 501 506 511	1776
aat acc ctc cgg ctg cgg cag gca gca aga cgg ccg ttt gtt gct att Asn Thr Leu Arg Leu Arg Gln Ala Ala Arg Arg Pro Phe Val Ala Ile 512 517 522 527	1824
aat tat gct gcc att agg gca gaa tat gca gac aga cat gct gaa cta Asn Tyr Ala Ala Ile Arg Ala Glu Tyr Ala Asp Arg His Ala Glu Leu 528 533 538 543	1872
tct gga agt cca ctg aaa agc aaa agc act agg aag cct ttg gca tgt	1920

Ser Gly Ser Pro Leu Lys Ser Lys Ser Thr Arg Lys Pro Leu Ala Cys  
 544 549 554 559

atc att ggg tat tta gag atc cat cct gca aag aaa cct aat gta att 1968  
 Ile Ile Gly Tyr Leu Glu Ile His Pro Ala Lys Lys Pro Asn Val Ile  
 560 565 570 575

cga tct aca cca agc ctg caa acc cca act acc aag cgg atg cta aca 2016  
 Arg Ser Thr Pro Ser Leu Gln Thr Pro Thr Thr Lys Arg Met Leu Thr  
 576 581 586 591

act cca aat cac aca tct ctg agc att ctg ggg aaa aga aac tac agt 2064  
 Thr Pro Asn His Thr Ser Leu Ser Ile Leu Gly Lys Arg Asn Tyr Ser  
 592 597 602 607

cat cac aat ggt ctg gat gaa ctc acg tgc tgt gtg tca gac tga gct 2112  
 His His Asn Gly Leu Asp Glu Leu Thr Cys Cys Val Ser Asp \*  
 608 613 618

ttccctgatt cattctacaa tccaagactt gctgcactgt octgctgatg ttcacagccg 2172

tgccctgggaa gaaggcagcc ccaactcccag tacatttcag tgggagacct ctgcgntgca 2232

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<400> 1069

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cccggggact gggagaacag gatagcagca ggagtcgggg ggccgcccga g atg ggg 177  
 Met Gly  
 1

aac act acc tcg tgc tgc gtg tcg tcc agt ccc aag ctc cgg agg aat 225  
 Asn Thr Thr Ser Cys Cys Val Ser Ser Ser Pro Lys Leu Arg Arg Asn  
 3 8 13 18

gcc cac tcc cgg ctg gag tcc tac cgg cca gac acg gac ctg agc cgc 273  
 Ala His Ser Arg Leu Glu Ser Tyr Arg Pro Asp Thr Asp Leu Ser Arg  
 19 24 29 34

gag gac acg ggc tgc aac ctg cag cac atc agc gac cgg gag aac ata 321  
 Glu Asp Thr Gly Cys Asn Leu Gln His Ile Ser Asp Arg Glu Asn Ile  
 35 40 45 50

gac gat ttg aac atg gaa ttc aat cct tca gat cat cct cgg gcc agc Asp Asp Leu Asn Met Glu Phe Asn Pro Ser Asp His Pro Arg Ala Ser 51 56 61 66	369
aca ata ttc ctc agt aaa tct cag aca gac gtg aga gaa aaa cgc aag Thr Ile Phe Leu Ser Lys Ser Gln Thr Asp Val Arg Glu Lys Arg Lys 67 72 77 82	417
agt ctc ttc att aac cat cat cct cca gga caa ata gca agg aaa tac Ser Leu Phe Ile Asn His His Pro Pro Gly Gln Ile Ala Arg Lys Tyr 83 88 93 98	465
agt tcc tgc tcc acc att ttc cta gat gat agc aca gtc agt caa cca Ser Ser Cys Ser Thr Ile Phe Leu Asp Asp Ser Thr Val Ser Gln Pro 99 104 109 114	513
aac ctc aag tat aca att aaa tgt gtc gct ctt gca ata tat tat cac Asn Leu Lys Tyr Thr Ile Lys Cys Val Ala Leu Ala Ile Tyr Tyr His 115 120 125 130	561
atc aaa aac agg gac cca gat gga agg atg ctc tta gat att ttt gat Ile Lys Asn Arg Asp Pro Asp Gly Arg Met Leu Leu Asp Ile Phe Asp 131 136 141 146	609
gaa aat ctt cac cct ctt tcg aaa tcc gaa gtg cca cca gat tat gac Glu Asn Leu His Pro Leu Ser Lys Ser Glu Val Pro Pro Asp Tyr Asp 147 152 157 162	657
aaa cac aac cca gag cag aag cag att tac cgg ttc gtt cgg aca ctg Lys His Asn Pro Glu Gln Lys Gln Ile Tyr Arg Phe Val Arg Thr Leu 163 168 173 178	705
ttc agt gct gct cag ctg acg gct gaa tgt gcc atc gtc acc ctg gtg Phe Ser Ala Ala Gln Leu Thr Ala Glu Cys Ala Ile Val Thr Leu Val 179 184 189 194	753
tac ctt gaa aga ctt tta aca tac gca gag ata gat atc tgt ccg gcc Tyr Leu Glu Arg Leu Leu Thr Tyr Ala Glu Ile Asp Ile Cys Pro Ala 195 200 205 210	801
aac tgg aag cgg att gtt tta ggg gcg atc ctg ctg gcc tcc aag gtg Asn Trp Lys Arg Ile Val Leu Gly Ala Ile Leu Leu Ala Ser Lys Val 211 216 221 226	849
tgg gat gac cag gct gta tgg aat gtg gat tac tgc cag atc ctg aaa Trp Asp Asp Gln Ala Val Trp Asn Val Asp Tyr Cys Gln Ile Leu Lys 227 232 237 242	897
gac atc acg gtg gag gac atg aac gag cta gag cga cag ttt ctt gaa Asp Ile Thr Val Glu Asp Met Asn Glu Leu Glu Arg Gln Phe Leu Glu 243 248 253 258	945
ttg ctg cag ttc aac atc aat gtt cct tcc agt gtc tat gcc aag tat Leu Leu Gln Phe Asn Ile Asn Val Pro Ser Ser Val Tyr Ala Lys Tyr 259 264 269 274	993



tat ttt gat ctt cgt tct ctg gca gaa gcg aac aac ctg agc ttt ccc	1041
Tyr Phe Asp Leu Arg Ser Leu Ala Glu Ala Asn Asn Leu Ser Phe Pro	
275 280 285 290	
ttg gag ccc ctg agc agg gag agg gct cac aag ctt gag gcc atc tct	1089
Leu Glu Pro Leu Ser Arg Glu Arg Ala His Lys Leu Glu Ala Ile Ser	
291 296 301 306	
cgc ctc tgc gag gac aag tac aag gac cta aga aga tcc gcg agg aag	1137
Arg Leu Cys Glu Asp Lys Tyr Lys Asp Leu Arg Arg Ser Ala Arg Lys	
307 312 317 322	
cgc tca gcc agt gca gac aac ctg act ctg ccc cgg tgg tcc cca gcc	1185
Arg Ser Ala Ser Ala Asp Asn Leu Thr Leu Pro Arg Trp Ser Pro Ala	
323 328 333 338	
atc atc tct taa cta cggaggcccg cggaggcca caccatccct tagtttctcc	1240
Ile Ile Ser *	
339	
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ccctttccct cttattcct caccocaaga acattctaga tcacatgggt gcttgtgcct	1960
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gctgggcatg tgccctggaac taccgagtag gagccatttc tttgtacccc tgcctaatacc	2140
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<400> 1070

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tcagaccctt gtcatgcgca ttgagagtcc tctagacagg cgctcctcgc agcaccgtag	180
tgcgcttgcg ctgagcagcc cgcgagggcg gaagtgggag ctgcgaccgc gctccctgtg	240
aggtgggcaa gcgggcaa atg gcg ccc tcc ggg agt ctt gca gtt ccc ctg	291
Met Ala Pro Ser Gly Ser Leu Ala Val Pro Leu	
1 5	
gca gtc ctg gtg ctg ttg ctt tgg ggt gct ccc tgg acg cac ggg cgg	339
Ala Val Leu Val Leu Leu Leu Trp Gly Ala Pro Trp Thr His Gly Arg	
12 17 22 27	
cgg agc aac gtt cgc gtc atc acg gac gag aac tgg aga gaa ctg ctg	387
Arg Ser Asn Val Arg Val Ile Thr Asp Glu Asn Trp Arg Glu Leu Leu	
28 33 38 43	
gaa gga gac tgg atg ata gaa ttt tat gcc ccg tgg tgc cct gct tgt	435
Glu Gly Asp Trp Met Ile Glu Phe Tyr Ala Pro Trp Cys Pro Ala Cys	
44 49 54 59	
caa aat ctt caa ccg gaa tgg gaa agt ttt gct gaa tgg gga gaa gat	483
Gln Asn Leu Gln Pro Glu Trp Glu Ser Phe Ala Glu Trp Gly Glu Asp	
60 65 70 75	
ctt gag gtt aat att gcg aaa gta gat gtc aca gag cag cca gga ctg	531
Leu Glu Val Asn Ile Ala Lys Val Asp Val Thr Glu Gln Pro Gly Leu	
76 81 86 91	
agt gga cgg ttt atc ata act gct ctt cct act att tat cat tgt aaa	579
Ser Gly Arg Phe Ile Ile Thr Ala Leu Pro Thr Ile Tyr His Cys Lys	
92 97 102 107	
gat ggt gaa ttt agg cgc tat cag ggt cca agg act aag aag gac ttc	627
Asp Gly Glu Phe Arg Arg Tyr Gln Gly Pro Arg Thr Lys Lys Asp Phe	
108 113 118 123	
ata aac ttt ata agt gat aaa gag tgg aag agt att gag ccc gtt tca	675
Ile Asn Phe Ile Ser Asp Lys Glu Trp Lys Ser Ile Glu Pro Val Ser	
124 129 134 139	
tca tgg ttt ggt cca ggt tct gtt ctg atg agt agt atg tca gca ctc	723
Ser Trp Phe Gly Pro Gly Ser Val Leu Met Ser Ser Met Ser Ala Leu	
140 145 150 155	

ttt cag cta tct atg tgg atc agg acg tgc cat aac tac ttt att gaa	771
Phe Gln Leu Ser Met Trp Ile Arg Thr Cys His Asn Tyr Phe Ile Glu	
156 161 166 171	
gac ctt gga ttg cca gtg tgg gga tca tat act gtt ttt gct tta gca	819
Asp Leu Gly Leu Pro Val Trp Gly Ser Tyr Thr Val Phe Ala Leu Ala	
172 177 182 187	
act ctg ttt tcc gga ctg tta tta gga ctc tgt atg ata ttt gtg gca	867
Thr Leu Phe Ser Gly Leu Leu Leu Gly Leu Cys Met Ile Phe Val Ala	
188 193 198 203	
gat tgc ctt tgt cct tca aaa agg cgc aga cca cag cca tac cca tac	915
Asp Cys Leu Cys Pro Ser Lys Arg Arg Arg Pro Gln Pro Tyr Pro Tyr	
204 209 214 219	
cct tca aaa aaa tta tta tca gaa tct gca caa cct ttg aaa aaa gtg	963
Pro Ser Lys Lys Leu Leu Ser Glu Ser Ala Gln Pro Leu Lys Lys Val	
220 225 230 235	
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Glu Glu Glu Gln Glu Ala Asp Glu Glu Asp Val Ser Glu Glu Glu Ala	
236 241 246 251	
gaa agt aaa gaa gga aca aac aaa gac ttt cca cag aat gcc ata aga	1059
Glu Ser Lys Glu Gly Thr Asn Lys Asp Phe Pro Gln Asn Ala Ile Arg	
252 257 262 267	
caa cgc tct ctg ggt cca tca ttg gcc aca gat aaa tcc tag ttaaatt	1108
Gln Arg Ser Leu Gly Pro Ser Leu Ala Thr Asp Lys Ser *	
268 273 278	
ttatagttat cttaatatatta tgattttgat aaaaacagaa gattgatcat tttgtttggt	1168
ttgaagtgaa ctgtgacttt tttgaatatt gcagggttca gtctagattg tcattaaatt	1228
gaagagtcta cattcagaac ataaaagcac taggtataca agtttgaaat atgatttaag	1288
cacagtatga tggtttaaat agttctctaa tttttgaaaa atcgtgccaa gcaataagat	1348
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cttactatgg gttacatttt ttatttttca aattggatga taatttcttg gaaacatttt	1828

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 gtaatgtccc cttctttcta ggctctgttg ctgtgtgaat ccattagatt tacagtatcg 2488  
 taatatacaa gttttcttta aagccctctc ctttagaatt taaaatattg taccattgaa 2548  
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<400> 1071

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gcc aag ttg gag aag cac ttg atg ctt ctg cgg cag gag tat gtc aag 101  
 Ala Lys Leu Glu Lys His Leu Met Leu Leu Arg Gln Glu Tyr Val Lys  
 7 12 17 22

ctg caa aag aag ctg gcg gag aca gag aag cgc tgc gct ctc ttg gct 149  
 Leu Gln Lys Lys Leu Ala Glu Thr Glu Lys Arg Cys Ala Leu Leu Ala  
 23 28 33 38

gcg cag gca aac aag gag agc agc agc gag tcc ttc atc agc cgt ctg	197
Ala Gln Ala Asn Lys Glu Ser Ser Ser Glu Ser Phe Ile Ser Arg Leu	
39 44 49 54	
ctg gcc atc gtg gca gac ctc tac gag cag gag cag tac agc gat ctg	245
Leu Ala Ile Val Ala Asp Leu Tyr Glu Gln Glu Gln Tyr Ser Asp Leu	
55 60 65 70	
aag ata aag gtt ggg gac agg cac atc agt gct cac aag ttt gtc ctg	293
Lys Ile Lys Val Gly Asp Arg His Ile Ser Ala His Lys Phe Val Leu	
71 76 81 86	
tca gcc cgc agt gac agc tgg agt ctg gct aac ttg tct tcc act aaa	341
Ser Ala Arg Ser Asp Ser Trp Ser Leu Ala Asn Leu Ser Ser Thr Lys	
87 92 97 102	
gag ttg gac ctg tca gat gct aat cct gag gtg acg atg aca atg ctt	389
Glu Leu Asp Leu Ser Asp Ala Asn Pro Glu Val Thr Met Thr Met Leu	
103 108 113 118	
cgc tgg atc tat aca gat gag ctg gag ttc aga gag gat gat gtg ttc	437
Arg Trp Ile Tyr Thr Asp Glu Leu Glu Phe Arg Glu Asp Asp Val Phe	
119 124 129 134	
ctg act gaa ctg atg aaa cta gca aat cgg ttt cag cta cag ctc ctc	485
Leu Thr Glu Leu Met Lys Leu Ala Asn Arg Phe Gln Leu Gln Leu Leu	
135 140 145 150	
agg gag aga tgt gag aag ggt gtt atg tct cta gtg aat gtc agg aac	533
Arg Glu Arg Cys Glu Lys Gly Val Met Ser Leu Val Asn Val Arg Asn	
151 156 161 166	
tgt att cgc ttc tac cag acg gca gag gag ctg aat gcc agc aca ctg	581
Cys Ile Arg Phe Tyr Gln Thr Ala Glu Glu Leu Asn Ala Ser Thr Leu	
167 172 177 182	
atg aac tac tgt gca gaa att att gca agt cat tgg gac gac ctg agg	629
Met Asn Tyr Cys Ala Glu Ile Ile Ala Ser His Trp Asp Asp Leu Arg	
183 188 193 198	
aag gag gat ttc agc agc atg agc cct cag ttg tta tac aaa atg atc	677
Lys Glu Asp Phe Ser Ser Met Ser Pro Gln Leu Leu Tyr Lys Met Ile	
199 204 209 214	
aaa tcc aag aca gag tac ccg cta cat aaa gcc atc aaa gtg gag aga	725
Lys Ser Lys Thr Glu Tyr Pro Leu His Lys Ala Ile Lys Val Glu Arg	
215 220 225 230	
gaa gac gtg gtc tcc ctg tat ctg att gaa atg gat tcc cag ctc cct	773
Glu Asp Val Val Ser Leu Tyr Leu Ile Glu Met Asp Ser Gln Leu Pro	
231 236 241 246	
ggg aag ctg aat gaa gcg gac cat aac ggg gac ctg gca tta gac cta	821
Gly Lys Leu Asn Glu Ala Asp His Asn Gly Asp Leu Ala Leu Asp Leu	
247 252 257 262	

gcc ctc tca cga cga ctg gag aat att gcc acc acg ctg gtt agt cac	869
Ala Leu Ser Arg Arg Leu Glu Asn Ile Ala Thr Thr Leu Val Ser His	
263 268 273 278	
aaa gct gat gtg gac atg gtg gac aag agt ggc tgg agc ttg tta cac	917
Lys Ala Asp Val Asp Met Val Asp Lys Ser Gly Trp Ser Leu Leu His	
279 284 289 294	
aaa gga atc caa aga gga gat ctc ttt gct gcc act ttc ctc att aag	965
Lys Gly Ile Gln Arg Gly Asp Leu Phe Ala Ala Thr Phe Leu Ile Lys	
295 300 305 310	
aat ggg gcc ttt gtc aac gct gct aca ctg ggt gcc cag gag aca cca	1013
Asn Gly Ala Phe Val Asn Ala Ala Thr Leu Gly Ala Gln Glu Thr Pro	
311 316 321 326	
ctg cac ctt gtg gcc ttg tac agt tca aag aaa cac tca gca gat gtg	1061
Leu His Leu Val Ala Leu Tyr Ser Ser Lys Lys His Ser Ala Asp Val	
327 332 337 342	
atg tct gag atg gcg cag att gca gag gcc ctt ctg cag gct ggt gcc	1109
Met Ser Glu Met Ala Gln Ile Ala Glu Ala Leu Leu Gln Ala Gly Ala	
343 348 353 358	
aac ccc aac atg cag gac agc aag ggg agg act cct tta cat gtg tcc	1157
Asn Pro Asn Met Gln Asp Ser Lys Gly Arg Thr Pro Leu His Val Ser	
359 364 369 374	
atc atg gcc ggg aat gaa tat gtg ttc agt cag ctg ctg cag tgc aaa	1205
Ile Met Ala Gly Asn Glu Tyr Val Phe Ser Gln Leu Leu Gln Cys Lys	
375 380 385 390	
caa cta gat tta gaa ctc aaa gac cac gag ggc agc acg gct ctg tgg	1253
Gln Leu Asp Leu Glu Leu Lys Asp His Glu Gly Ser Thr Ala Leu Trp	
391 396 401 406	
ctg gca gtg cag cat atc aca gtg tct tct gac cag tct gtg aac ccc	1301
Leu Ala Val Gln His Ile Thr Val Ser Ser Asp Gln Ser Val Asn Pro	
407 412 417 422	
ttc gaa gat gtc ccc gtg gta aat ggg act tca ttt gat gag aac agc	1349
Phe Glu Asp Val Pro Val Val Asn Gly Thr Ser Phe Asp Glu Asn Ser	
423 428 433 438	
ttt gca gcc aga ctc atc cag cgc ggc agc cac aca gac gca cct gac	1397
Phe Ala Ala Arg Leu Ile Gln Arg Gly Ser His Thr Asp Ala Pro Asp	
439 444 449 454	
acg gcg aca gga aac tgt tta cta cag cgg gca gct gga gca gga aac	1445
Thr Ala Thr Gly Asn Cys Leu Leu Gln Arg Ala Ala Gly Ala Gly Asn	
455 460 465 470	
gag gca gca gct ctt ttc ctg gca acc aac ggt gcc cat gtc aac cac	1493
Glu Ala Ala Ala Leu Phe Leu Ala Thr Asn Gly Ala His Val Asn His	
471 476 481 486	
aga aac aag tgg gga gaa acc ccg ttg cac aca gcg tgt cgg cat ggc	1541

Arg	Asn	Lys	Trp	Gly	Glu	Thr	Pro	Leu	His	Thr	Ala	Cys	Arg	His	Gly	
487					492					497					502	
ctg	gcc	aac	ctc	aca	gca	gag	ctc	ctg	cag	caa	ggc	gcc	aac	cca	aac	1589
Leu	Ala	Asn	Leu	Thr	Ala	Glu	Leu	Leu	Gln	Gln	Gly	Ala	Asn	Pro	Asn	
503					508					513					518	
ctg	cag	acg	gag	gaa	gct	ctg	cct	ctg	cca	aag	gag	gcc	gca	tcc	ctg	1637
Leu	Gln	Thr	Glu	Glu	Ala	Leu	Pro	Leu	Pro	Lys	Glu	Ala	Ala	Ser	Leu	
519					524					529					534	
acc	agc	ttg	gcg	gac	agc	gtc	cat	ctg	cag	acg	cca	ctg	cac	atg	gcg	1685
Thr	Ser	Leu	Ala	Asp	Ser	Val	His	Leu	Gln	Thr	Pro	Leu	His	Met	Ala	
535					540					545					550	
atc	gcc	tat	aac	cat	ccg	gat	gtg	gtg	tct	gtc	atc	ctg	gag	cag	aaa	1733
Ile	Ala	Tyr	Asn	His	Pro	Asp	Val	Val	Ser	Val	Ile	Leu	Glu	Gln	Lys	
551					556					561					566	
gcc	aat	gct	ctt	cat	gcc	acc	aac	aac	ttg	cag	atc	att	ccg	gac	ttc	1781
Ala	Asn	Ala	Leu	His	Ala	Thr	Asn	Asn	Leu	Gln	Ile	Ile	Pro	Asp	Phe	
567					572					577					582	
agc	ctc	aaa	gat	tcc	cga	gac	cag	act	gtg	ctg	ggc	ctg	gca	tta	tgg	1829
Ser	Leu	Lys	Asp	Ser	Arg	Asp	Gln	Thr	Val	Leu	Gly	Leu	Ala	Leu	Trp	
583					588					593					598	
act	ggc	atg	cac	acg	atc	gca	gcc	cag	ctg	ctg	ggc	tct	gga	gcc	gcc	1877
Thr	Gly	Met	His	Thr	Ile	Ala	Ala	Gln	Leu	Leu	Gly	Ser	Gly	Ala	Ala	
599					604					609					614	
atc	aat	gac	acc	atg	tgc	gat	ggg	cag	acg	cta	ctg	cac	atg	gcc	ata	1925
Ile	Asn	Asp	Thr	Met	Ser	Asp	Gly	Gln	Thr	Leu	Leu	His	Met	Ala	Ile	
615					620					625					630	
cag	cgg	cag	gac	agc	aag	agc	gca	ctc	ttc	ctg	ctg	gag	cac	cag	gca	1973
Gln	Arg	Gln	Asp	Ser	Lys	Ser	Ala	Leu	Phe	Leu	Leu	Glu	His	Gln	Ala	
631					636					641					646	
gat	ata	aat	gtc	agc	agg	act	cag	gac	ggg	gag	aca	gcc	ctc	cag	ctg	2021
Asp	Ile	Asn	Val	Ser	Arg	Thr	Gln	Asp	Gly	Glu	Thr	Ala	Leu	Gln	Leu	
647					652					657					662	
gcc	atc	aga	aac	cag	ctt	cca	ctc	gta	gtt	gat	gcc	ata	tgc	acc	cga	2069
Ala	Ile	Arg	Asn	Gln	Leu	Pro	Leu	Val	Val	Asp	Ala	Ile	Cys	Thr	Arg	
663					668					673					678	
gga	gct	gac	atg	tct	gtg	cca	gat	gag	aag	ggg	aac	ccc	ccg	ctg	tgg	2117
Gly	Ala	Asp	Met	Ser	Val	Pro	Asp	Glu	Lys	Gly	Asn	Pro	Pro	Leu	Trp	
679					684					689					694	
ctt	gca	ttg	gca	aac	aat	ctg	gag	gac	atc	gca	tcc	act	ctg	gtc	aga	2165
Leu	Ala	Leu	Ala	Asn	Asn	Leu	Glu	Asp	Ile	Ala	Ser	Thr	Leu	Val	Arg	
695					700					705					710	
cat	ggc	tgt	gat	gcc	aca	tgc	tgg	ggt	ccg	gga	cct	ggt	ggg	tgc	ctt	2213
His	Gly	Cys	Asp	Ala	Thr	Cys	Trp	Gly	Pro	Gly	Pro	Gly	Gly	Cys	Leu	

711	716	721	726	
cag acg ctc ctg cac	aga gcc att gat gaa aac aac gag ccc acc gcc			2261
Gln Thr Leu Leu His	Arg Ala Ile Asp Glu Asn Asn Glu Pro Thr Ala			
727	732	737	742	
tgc ttt ctt att cgc	agt ggc tgt gac gtg aac agt ccc aga caa cca			2309
Cys Phe Leu Ile Arg	Ser Gly Cys Asp Val Asn Ser Pro Arg Gln Pro			
743	748	753	758	
ggc gcc aat gga gaa gga	gag gaa gag gct aga gat ggg cag acc cct			2357
Gly Ala Asn Gly Glu Gly	Glu Glu Glu Ala Arg Asp Gly Gln Thr Pro			
759	764	769	774	
ttg cat ttg gca gcc tct	tgg ggg ctg gaa gag aca gta cag tgt ctt			2405
Leu His Leu Ala Ala Ser	Trp Gly Leu Glu Glu Thr Val Gln Cys Leu			
775	780	785	790	
ctg gag ttt ggt gcc aac	gtg aac gca cag gat gca gaa gga aga acc			2453
Leu Glu Phe Gly Ala Asn	Val Asn Ala Gln Asp Ala Glu Gly Arg Thr			
791	796	801	806	
ccc atc cac gtg gcc atc	agc agc caa cac ggt gtc atc att cag ctg			2501
Pro Ile His Val Ala Ile	Ser Ser Gln His Gly Val Ile Ile Gln Leu			
807	812	817	822	
ttg gtt tct cac ccc gat	atc cat ttg aat gta cgg gac aga caa ggg			2549
Leu Val Ser His Pro Asp	Ile His Leu Asn Val Arg Asp Arg Gln Gly			
823	828	833	838	
ctg acc ccg ttt gcc tgt	gcc atg act ttc aag aac aac aag tca gcc			2597
Leu Thr Pro Phe Ala Cys	Ala Met Thr Phe Lys Asn Asn Lys Ser Ala			
839	844	849	854	
gag gcc att ctc aaa cga	gag tca ggg gct gct gag cag gtg gat aac			2645
Glu Ala Ile Leu Lys Arg	Glu Ser Gly Ala Ala Glu Gln Val Asp Asn			
855	860	865	870	
aag ggc cgg aat ttc ctt	cat gtg gca gtt cag aac tct gat att gaa			2693
Lys Gly Arg Asn Phe Leu	His Val Ala Val Gln Asn Ser Asp Ile Glu			
871	876	881	886	
agt gtg ctg ttc ctg atc	agt gtc cac gct aat gtg aat tca aga gtc			2741
Ser Val Leu Phe Leu Ile	Ser Val His Ala Asn Val Asn Ser Arg Val			
887	892	897	902	
cag gat gcc tcc aag ttg	acc ccc ctg cac ctc gct gtc caa gca ggc			2789
Gln Asp Ala Ser Lys Leu	Thr Pro Leu His Leu Ala Val Gln Ala Gly			
903	908	913	918	
tca gaa att att gtc cgc	aat ttg ctt ctt gcg gga gcc aaa gtg aac			2837
Ser Glu Ile Ile Val Arg	Asn Leu Leu Leu Ala Gly Ala Lys Val Asn			
919	924	929	934	
gaa tta act aag cat cgc	cag act gcc ctc cat ctt gct gcc cag cag			2885
Glu Leu Thr Lys His Arg	Gln Thr Ala Leu His Leu Ala Ala Gln Gln			
935	940	945	950	



gac ctg ccc acc atc tgc tca gtc ctc cta gag aat ggc gtg gac ttt	2933
Asp Leu Pro Thr Ile Cys Ser Val Leu Leu Glu Asn Gly Val Asp Phe	
951 956 961 966	
gct gcc gtg gat gag aat gga aac aat gct ctt cat ctt gct gtc atg	2981
Ala Ala Val Asp Glu Asn Gly Asn Asn Ala Leu His Leu Ala Val Met	
967 972 977 982	
cac ggc cgg ctc aac aac atc cgg gtt ctc ctg aca gag tgc aca gtg	3029
His Gly Arg Leu Asn Asn Ile Arg Val Leu Leu Thr Glu Cys Thr Val	
983 988 993 998	
gac gcc gaa gcc ttt aat ctc aga ggc cag tca cca <sup>th</sup> ctg cac att ttg	3077
Asp Ala Glu Ala Phe Asn Leu Arg Gly Gln Ser Pro Leu His Ile Leu	
999 1004 1009 1014	
gga caa tat ggc aag gag aat gca gcg gcc atc ttt gat ctc ttc cta	3125
Gly Gln Tyr Gly Lys Glu Asn Ala Ala Ala Ile Phe Asp Leu Phe Leu	
1015 1020 1025 1030	
gaa tgc atg ccg ggg tat cct ctg gac aag ccg gat gca gac ggc agc	3173
Glu Cys Met Pro Gly Tyr Pro Leu Asp Lys Pro Asp Ala Asp Gly Ser	
1031 1036 1041 1046	
acg gtg ctg ctc ctg gca tac atg aaa ggg aac gcc aac ttg tgc cgc	3221
Thr Val Leu Leu Leu Ala Tyr Met Lys Gly Asn Ala Asn Leu Cys Arg	
1047 1052 1057 1062	
gcc atc gtc cgg tgc ggg gct cgc ctc ggg gtg aat aac aac cag gga	3269
Ala Ile Val Arg Ser Gly Ala Arg Leu Gly Val Asn Asn Asn Gln Gly	
1063 1068 1073 1078	
gtc aac atc ttc aac tac cag gtc gcc acc aag cag ctc ctg ttc cga	3317
Val Asn Ile Phe Asn Tyr Gln Val Ala Thr Lys Gln Leu Leu Phe Arg	
1079 1084 1089 1094	
ctg ctg gat atg ctg tcc aag gag cct ccg tgg tgt gac ggc tcc tac	3365
Leu Leu Asp Met Leu Ser Lys Glu Pro Pro Trp Cys Asp Gly Ser Tyr	
1095 1100 1105 1110	
tgc tat gag tgc act gcc agg ttc gga gtc acc act cgc aaa cac cac	3413
Cys Tyr Glu Cys Thr Ala Arg Phe Gly Val Thr Thr Arg Lys His His	
1111 1116 1121 1126	
tgt cgt cac tgc gga cgt ctt ctt tgc cat aaa tgc tgc acc aag gag	3461
Cys Arg His Cys Gly Arg Leu Leu Cys His Lys Cys Ser Thr Lys Glu	
1127 1132 1137 1142	
att cct att ata aag ttt gat ctg aac aag cct gtg cgg gtt tgc aac	3509
Ile Pro Ile Ile Lys Phe Asp Leu Asn Lys Pro Val Arg Val Cys Asn	
1143 1148 1153 1158	
att tgt ttt gat gta ctg act ctg ggt ggg gtt tct tag tgagcccccc	3558
Ile Cys Phe Asp Val Leu Thr Leu Gly Gly Val Ser *	
1159 1164 1169	

ggaggggtcca ggccaagtc tgggtcacct cccagcagc tgctctgctc accagcctga 3618  
 ccccaaccag agcaggagct ggcgggtgtc ttcttgccgc aatagactgg aacgattaag 3678  
 gaccatggtg tgatagatcc catttcaa at gattccatat gattgtcagt gtgtgctgtc 3738  
 agactgtgat cgatttcact agatgtctca ctcatcagan caggcattcg ggctaagtgg 3798  
 taaatgtgat taggaatnag acctcctccc attctgctag caacatacag ggacacttgg 3858  
 aaaaccattt ccttccagt cagcttggtg tccatcccca gagccaattt caatggaaan 3918  
 gccttttccc ccggcccctt ggggggcctg gacctgatng agcgagagc ctctcagcgt 3978  
 aggaagctgg ctgcttaatc gagctggctt tactctaggg taagtggctg tggacttttc 4038  
 tgcacagtgt ttccataaag ataataggat cctcttgct gaagtctttt tttcttttta 4098  
 cg 4100

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 <211> 777  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (36)..(653)

<400> 1072  
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 Met Ala Glu Glu Glu Ala  
 1  
 gcc aag ttg gag aag cac ttg atg ctt ctg cgg cag gag tat gtc aag 101  
 Ala Lys Leu Glu Lys His Leu Met Leu Leu Arg Gln Glu Tyr Val Lys  
 7 12 17 22  
 ctg caa aag aag ctg gcg gag aca gag aag cgc tgc gct ctc ttg gct 149  
 Leu Gln Lys Lys Leu Ala Glu Thr Glu Lys Arg Cys Ala Leu Leu Ala  
 23 28 33 38  
 gcg cag gca aac aag gag agc agc agc gag tcc ttc atc agc cgt ctg 197  
 Ala Gln Ala Asn Lys Glu Ser Ser Ser Glu Ser Phe Ile Ser Arg Leu  
 39 44 49 54  
 ctg gcc atc gtg gca gac ctc tac gag cag gag cag tac agc gat ctg 245  
 Leu Ala Ile Val Ala Asp Leu Tyr Glu Gln Glu Gln Tyr Ser Asp Leu  
 55 60 65 70  
 aag ata aag gtt ggg gac agg cac atc agt gct cac aag ttt gtc ctg 293  
 Lys Ile Lys Val Gly Asp Arg His Ile Ser Ala His Lys Phe Val Leu  
 71 76 81 86

tca gcc cgc agt gac agc tgg agt ctg gct aac ttg tct tcc act aaa	341
Ser Ala Arg Ser Asp Ser Trp Ser Leu Ala Asn Leu Ser Ser Thr Lys	
87 92 97 102	
gag ttg gac ctg tca gat gct aat cct gag gtg acg atg aca atg ctt	389
Glu Leu Asp Leu Ser Asp Ala Asn Pro Glu Val Thr Met Thr Met Leu	
103 108 113 118	
cgc tgg atc tat aca gat gag ctg gag ttc aga gag gat gat gtg ttc	437
Arg Trp Ile Tyr Thr Asp Glu Leu Glu Phe Arg Glu Asp Asp Val Phe	
119 124 129 134	
ctg act gaa ctg atg aaa cta gca aat cgg ttt cag cta cag ctc ctc	485
Leu Thr Glu Leu Met Lys Leu Ala Asn Arg Phe Gln Leu Gln Leu Leu	
135 140 145 150	
agg gag aga tgt gag aag ggt gtt atg tct cta gtg aat gtc agg aac	533
Arg Glu Arg Cys Glu Lys Gly Val Met Ser Leu Val Asn Val Arg Asn	
151 156 161 166	
tgt att cgc ttc tac cag acg gca gag gag ctg aat gcc agc aca ctg	581
Cys Ile Arg Phe Tyr Gln Thr Ala Glu Glu Leu Asn Ala Ser Thr Leu	
167 172 177 182	
atg aac tac tgt gca gaa att att gca agt cat tgg gtg agt gag gtt	629
Met Asn Tyr Cys Ala Glu Ile Ile Ala Ser His Trp Val Ser Glu Val	
183 188 193 198	
gag ggt gtc aac aaa gca ctc tag ctggcagtca ggagaccgcc gctggggacg	683
Glu Gly Val Asn Lys Ala Leu *	
199 204	
tagttccatg gaaagtgacc tctctggcac ctggttttct cttgttacac aattgaagaa	743
taaatagttt gaaaagatga aaaaaaaaaa aaaa	777

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (92)..(1090)

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cgttcagctc tagggcccgt gcaggcacac c atg aac acc tcc cca ggc acg	112
Met Asn Thr Ser Pro Gly Thr	
1 / 5	
gtg ggc agt gac ccg gtc atc ctg gcc act gca ggc tac gac cac acc	160
Val Gly Ser Asp Pro Val Ile Leu Ala Thr Ala Gly Tyr Asp His Thr	

8	13	18	23	
gtg cgc ttc tgg cag gcc cac agc ggc atc tgc acc cgg acg gtg cag				208
Val Arg Phe Trp Gln Ala His Ser Gly Ile Cys Thr Arg Thr Val Gln				
24	29	34	39	
cac cag gac tcc cag gtg aat gcc ttg gag gtc aca ccg gac cgc agc				256
His Gln Asp Ser Gln Val Asn Ala Leu Glu Val Thr Pro Asp Arg Ser				
40	45	50	55	
atg att gct gct gca gtt cag cct gtg tcc cta ggt tac cag cac atc				304
Met Ile Ala Ala Ala Val Gln Pro Val Ser Leu Gly Tyr Gln His Ile				
56	61	66	71	
cgc atg tat gat ctc aac tcc aat aac cct aac ccc atc atc agc tac				352
Arg Met Tyr Asp Leu Asn Ser Asn Asn Pro Asn Pro Ile Ile Ser Tyr				
72	77	82	87	
gac ggc gtc aac aag aac atc gcg tct gtg ggc ttc cac gaa gac ggc				400
Asp Gly Val Asn Lys Asn Ile Ala Ser Val Gly Phe His Glu Asp Gly				
88	93	98	103	
cgc tgg atg tac acg ggc ggc gag gac tgc aca gcc agg atc tgg gac				448
Arg Trp Met Tyr Thr Gly Gly Glu Asp Cys Thr Ala Arg Ile Trp Asp				
104	109	114	119	
ctc agg tcc cgg aac ctg cag tgc cag cgg atc ttc cag gtg aac gca				496
Leu Arg Ser Arg Asn Leu Gln Cys Gln Arg Ile Phe Gln Val Asn Ala				
120	125	130	135	
ccc att aac tgc gtg tgc ctg cac ccc aac cag gca gag ctc atc gtg				544
Pro Ile Asn Cys Val Cys Leu His Pro Asn Gln Ala Glu Leu Ile Val				
136	141	146	151	
ggt gac cag agc ggg gct atc cac atc tgg gac ttg aaa aca gac cac				592
Gly Asp Gln Ser Gly Ala Ile His Ile Trp Asp Leu Lys Thr Asp His				
152	157	162	167	
aac gag cag ctg atc cct gag ccc gag gtc tcc atc acg tcc gcc cac				640
Asn Glu Gln Leu Ile Pro Glu Pro Glu Val Ser Ile Thr Ser Ala His				
168	173	178	183	
atc gat ccc gac gcc agc tac atg gca gct gtc aat agc acc gga aac				688
Ile Asp Pro Asp Ala Ser Tyr Met Ala Ala Val Asn Ser Thr Gly Asn				
184	189	194	199	
tgc tat gtc tgg aat ctg acg ggg ggc att ggt gac gag gtg acc cag				736
Cys Tyr Val Trp Asn Leu Thr Gly Gly Ile Gly Asp Glu Val Thr Gln				
200	205	210	215	
ctc atc ccc aag act aag atc cct gcc cac acg cgc tac gcc ctg cag				784
Leu Ile Pro Lys Thr Lys Ile Pro Ala His Thr Arg Tyr Ala Leu Gln				
216	221	226	231	
tgt cgc ttc agc ccc gac tcc acg ctc ctc gcc acc tgc tgc gct gat				832
Cys Arg Phe Ser Pro Asp Ser Thr Leu Leu Ala Thr Cys Ser Ala Asp				
232	237	242	247	

cag acg tgc aag atc tgg agg acg tcc aac ttc tcc ctg atg acg gag	880
Gln Thr Cys Lys Ile Trp Arg Thr Ser Asn Phe Ser Leu Met Thr Glu	
248 253 258 263	
ctg agc atc aag agc ggc aac ccc ggg gag tcc tcc cgc ggc tgg atg	928
Leu Ser Ile Lys Ser Gly Asn Pro Gly Glu Ser Ser Arg Gly Trp Met	
264 269 274 279	
tgg ggc tgc gcc ttc tcg ggg gac tcc cag tac atc gtc act gct tcc	976
Trp Gly Cys Ala Phe Ser Gly Asp Ser Gln Tyr Ile Val Thr Ala Ser	
280 285 290 295	
tcg gac aac ctg gcc cgg ctc tgg tgt gtg gag act <sup>g</sup> gga gag atc aag	1024
Ser Asp Asn Leu Ala Arg Leu Trp Cys Val Glu Thr Gly Glu Ile Lys	
296 301 306 311	
aga gag tat ggc ggc cac cag aag gct gtt gtc tgc ctg gcc ttc aat	1072
Arg Glu Tyr Gly Gly His Gln Lys Ala Val Val Cys Leu Ala Phe Asn	
312 317 322 327	
gac agt gtg ctg ggc tag cctgtg acccctcggg actgcctggt gcaggtggtg	1126
Asp Ser Val Leu Gly *	
328 333	
gcagctggag ggacccatgc agcaccacagg tcagagcaga ccctcccctg ccggcctgcg	1186
ccagctggac ctgatggccc cctgtggcgc cttgacctgc tgggccaggc tgccctggga	1246
ctctcagccc ccagttgott atccagatgt gacagagctc gacccaagcc aggctgcaca	1306
ctcctggact gggctagcct gcaactgcctg ggaaagtcgg ccgagggccc aaagctgctg	1366
aggggtctga ggctggtgcc ccccccaag ctagtgtgtt ctctgcccct ccctgcccgc	1426
gtttcagggc ctcggtccat agagaacacc accaccatgg ccaggtggaa gggtttatta	1486
gtccctgccca gcagctgtcc tccttggtgc aggtggcctg gccagcccac tggattgggg	1546
acgggccagg ctgggccagg tcgggggctc agtctgggag gtaataaaag cagaccgaca	1606
cgcagatggt gctcgggaaa aaaaaaaaaa	1635

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (128)..(1210)

<400> 1074  
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cgcgcccgta agatgctctg acctttgacc cctgccgttc agctctaggg cccgtgcagg	120
ccacacc atg aac acc tcc cca ggc acg gtg ggc agt gac ccg gtc atc	169
Met Asn Thr Ser Pro Gly Thr Val Gly Ser Asp Pro Val Ile	
1 5 10	
ctg gcc act gca ggc tac gac cac acc gtg cgc ttc tgg cag gcc cac	217
Leu Ala Thr Ala Gly Tyr Asp His Thr Val Arg Phe Trp Gln Ala His	
15 20 25 30	
agc ggc atc tgc acc cgg acg gtg cag cac cag gac tcc cag gtg aat	265
Ser Gly Ile Cys Thr Arg Thr Val Gln His Gln Asp Ser Gln Val Asn	
31 36 41 46	
gcc ttg gag gtc aca ccg gac cgc agc atg att gct gct gca ggt tac	313
Ala Leu Glu Val Thr Pro Asp Arg Ser Met Ile Ala Ala Ala Gly Tyr	
47 52 57 62	
cag cac atc cgc atg tat gat ctc aac tcc aat aac cct aac ccc atc	361
Gln His Ile Arg Met Tyr Asp Leu Asn Ser Asn Asn Pro Asn Pro Ile	
63 68 73 78	
atc agc tac gac ggc gtc aac aag aac atc gcg tct gtg ggc ttc cac	409
Ile Ser Tyr Asp Gly Val Asn Lys Asn Ile Ala Ser Val Gly Phe His	
79 84 89 94	
gaa gac ggc cgc tgg atg tac acg ggc ggc gag gac tgc aca gcc agg	457
Glu Asp Gly Arg Trp Met Tyr Thr Gly Gly Glu Asp Cys Thr Ala Arg	
95 100 105 110	
atc tgg gac ctc agg tcc cgg aac ctg cag tgc cag cgg atc ttc cag	505
Ile Trp Asp Leu Arg Ser Arg Asn Leu Gln Cys Gln Arg Ile Phe Gln	
111 116 121 126	
gtg aac gca ccc att aac tgc gtg tgc ctg cac ccg aac cag gca gag	553
Val Asn Ala Pro Ile Asn Cys Val Cys Leu His Pro Asn Gln Ala Glu	
127 132 137 142	
ctc atc gtg ggt gac cag agc ggg gct atc cac atc tgg gac ttg aaa	601
Leu Ile Val Gly Asp Gln Ser Gly Ala Ile His Ile Trp Asp Leu Lys	
143 148 153 158	
aca gac cac aac gag cag ctg atc cct gag ccc gag gtc tcc atc acg	649
Thr Asp His Asn Glu Gln Leu Ile Pro Glu Pro Glu Val Ser Ile Thr	
159 164 169 174	
tcc gcc cac atc gat ccc gac gcc agc tac atg gca gct gtc aat agc	697
Ser Ala His Ile Asp Pro Asp Ala Ser Tyr Met Ala Ala Val Asn Ser	
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acc ctg gtg ccc ttc tcc tgt cta ctt ccg ttg gcc atc ggc atc ctc	745
Thr Leu Val Pro Phe Ser Cys Leu Leu Pro Leu Ala Ile Gly Ile Leu	
191 196 201 206	
cag gaa gga gaa ttt gag tcc ttg gcc agg cgt ggc ctc ctg ttc ttg	793
Gln Glu Gly Glu Phe Glu Ser Leu Ala Arg Arg Gly Leu Leu Phe Leu	

207	212	217	222	
gct tgc cag gga aac	tgc tat gtc tgg aat	ctg acg ggg ggc att	ggt	841
Ala Cys Gln Gly Asn	Cys Tyr Val Trp Asn	Leu Thr Gly Gly Ile	Gly	
223	228	233	238	
gac gag gtg acc cag	ctc atc ccc aag act	aag atc cct gcc cac	acg	889
Asp Glu Val Thr Gln	Leu Ile Pro Lys Thr	Lys Ile Pro Ala His	Thr	
239	244	249	254	
cgc tac gcc ctg cag	tgt cgc ttc agc ccc	gac tcc acg ctc ctc	gcc	937
Arg Tyr Ala Leu Gln	Cys Arg Phe Ser Pro	Asp Ser Thr Leu Leu	Ala	
255	260	265	270	
acc tgc tcg gct gat	cag acg tgc aag atc	tgg agg acg tcc aac	ttc	985
Thr Cys Ser Ala Asp	Gln Thr Cys Lys Ile	Trp Arg Thr Ser Asn	Phe	
271	276	281	286	
tcc ctg atg acg gag	ctg agc atc aag agc	ggc aac ccc ggg gag	tcc	1033
Ser Leu Met Thr Glu	Leu Ser Ile Lys Ser	Gly Asn Pro Gly Glu	Ser	
287	292	297	302	
tcc cgc ggc tgg atg	tgg ggc tgc gcc ttc	tcg ggg gac tcc cag	tac	1081
Ser Arg Gly Trp Met	Trp Gly Cys Ala Phe	Ser Gly Asp Ser Gln	Tyr	
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atc gtc act gct tcc	tcg gac aac ctg gcc	cgg ctc tgg tgt gtg	gag	1129
Ile Val Thr Ala Ser	Ser Asp Asn Leu Ala	Arg Leu Trp Cys Val	Glu	
319	324	329	334	
act gga gag atc aag	aga gag tat ggc ggc	cac cag aag gct gtt	gtc	1177
Thr Gly Glu Ile Lys	Arg Glu Tyr Gly Gly	His Gln Lys Ala Val	Val	
335	340	345	350	
tgc ctg gcc ttc aat	gac agt gtg ctg ggc	tag cctgtgac ccctcgggac		1228
Cys Leu Ala Phe Asn	Asp Ser Val Leu Gly	*		
351	356	361		
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gat ccc aat cct tct gca gcc cca aca tcc acc tgc gca cct agg aaa      98
Asp Pro Asn Pro Ser Ala Ala Pro Thr Ser Thr Cys Ala Pro Arg Lys
      14              19              24              29

atg ccc aaa agg att tca ata tcc aaa caa ctg gct tca gtg aaa gct      146
Met Pro Lys Arg Ile Ser Ile Ser Lys Gln Leu Ala Ser Val Lys Ala
      30              35              40              45

ctg agg aag tgc tca gat ctg gaa aaa gct att gcc acc act gct ctg      194
Leu Arg Lys Cys Ser Asp Leu Glu Lys Ala Ile Ala Thr Thr Ala Leu
      46              51              56              61

att ttc aga aat tct tct gac tct gat ggt aaa ctt gaa aaa gct att      242
Ile Phe Arg Asn Ser Ser Asp Ser Asp Gly Lys Leu Glu Lys Ala Ile
      62              67              72              77

gcc aaa gat ctg ctg caa acc caa ttt agg aat ttc gca gag gga caa      290
Ala Lys Asp Leu Leu Gln Thr Gln Phe Arg Asn Phe Ala Glu Gly Gln
      78              83              88              93

gaa acc aag cca aaa tac aga gag atc ctt tct gaa ctt gat gag cac      338
Glu Thr Lys Pro Lys Tyr Arg Glu Ile Leu Ser Glu Leu Asp Glu His
      94              99              104              109

aca gaa aat aag cta gat ttt gaa gac ttc atg atc ttg ctc tta agc      386
Thr Glu Asn Lys Leu Asp Phe Glu Asp Phe Met Ile Leu Leu Leu Ser
      110              115              120              125

atc act gtc atg tca gat ctg cta caa aat ata cgg aat gta aaa att      434
Ile Thr Val Met Ser Asp Leu Leu Gln Asn Ile Arg Asn Val Lys Ile
      126              131              136              141

atg aaa tga acagttc taaatatgct gtataaaata atggcaaaag acagtggtat      490
Met Lys *
      142

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 caacattgat ttgttttaga aagctctttt attttcagtt ctggctgtgt tcaacatctt 180  
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 gttctgtaat ttggcttgga ttaaagatgc ttggttagtg aaagctgctg ctttttttat 300  
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 Met Ala Glu Val Thr Val  
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 cca agg gtg tat gtc gtg ttt ggc atc cat tgc atc atg gcg aag gca 400  
 Pro Arg Val Tyr Val Val Phe Gly Ile His Cys Ile Met Ala Lys Ala  
 7 12 17 22  
 tct tca gat gtg cag gtt tca ggc ttt cat cgg aaa atc cag cac gtt 448  
 Ser Ser Asp Val Gln Val Ser Gly Phe His Arg Lys Ile Gln His Val  
 23 28 33 38  
 aaa aat gaa ctt tgc cac atg ttg agc ttg gag gag gtg gcc cca gtg 496  
 Lys Asn Glu Leu Cys His Met Leu Ser Leu Glu Glu Val Ala Pro Val  
 39 44 49 54  
 ctg cag cag aca tta ctt cag gac aac ctc ttg ggc agg gta cat ttt 544  
 Leu Gln Gln Thr Leu Leu Gln Asp Asn Leu Leu Gly Arg Val His Phe  
 55 60 65 70  
 gac caa ttt aaa gaa gca tta ata ctc atc ttg tcc aga act ctg tca 592  
 Asp Gln Phe Lys Glu Ala Leu Ile Leu Ile Leu Ser Arg Thr Leu Ser  
 71 76 81 86  
 gat gaa gaa cac ttc caa gaa cca gac tgc tca cta gaa gct cag ccc 640  
 Asp Glu Glu His Phe Gln Glu Pro Asp Cys Ser Leu Glu Ala Gln Pro  
 87 92 97 102  
 aga tat gtt aga ggt gag aag cct tac gga cga agg tcc ttg ccc gag 688  
 Arg Tyr Val Arg Gly Glu Lys Pro Tyr Gly Arg Arg Ser Leu Pro Glu  
 103 108 113 118  
 ttc caa gag tcc gtg gag gag ttt cct gag gtg acg gtg att gag ccc 736  
 Phe Gln Glu Ser Val Glu Glu Phe Pro Glu Val Thr Val Ile Glu Pro  
 119 124 129 134

ctg gat gaa gaa gcg cgg cct tca cac atc cca gcc ggt gac tgc agt	784
Leu Asp Glu Glu Ala Arg Pro Ser His Ile Pro Ala Gly Asp Cys Ser	
135 140 145 150	
gag cac tgg aag acg caa cgc agt gag gag tat gaa gcg gaa ggc cag	832
Glu His Trp Lys Thr Gln Arg Ser Glu Glu Tyr Glu Ala Glu Gly Gln	
151 156 161 166	
tta agg ttt tgg aac cca gat gac ttg aat gct tca cag agt gga tct	880
Leu Arg Phe Trp Asn Pro Asp Asp Leu Asn Ala Ser Gln Ser Gly Ser	
167 172 177 182	
tcc cct ccc caa gac tgg ata gaa gag aaa ctg caa <sup>gaa</sup> caa gtt tgt gaa	928
Ser Pro Pro Gln Asp Trp Ile Glu Glu Lys Leu Gln Gln Val Cys Glu	
183 188 193 198	
gat ttg ggg atc acc cct gat ggt cac ctg aac cgg aag aag ctg gtt	976
Asp Leu Gly Ile Thr Pro Asp Gly His Leu Asn Arg Lys Lys Leu Val	
199 204 209 214	
tcc atc tgt gag cag tat ggt ttg cag aat gtg gat gga gag atg ctc	1024
Ser Ile Cys Glu Gln Tyr Gly Leu Gln Asn Val Asp Gly Glu Met Leu	
215 220 225 230	
gag gaa gta ttc cat aat ctt gat cct gac ggt aca atg agt gta gaa	1072
Glu Glu Val Phe His Asn Leu Asp Pro Asp Gly Thr Met Ser Val Glu	
231 236 241 246	
gat ttt ttc tat ggt ttg ttt aaa aat gga aaa tct ctt aca cca tca	1120
Asp Phe Phe Tyr Gly Leu Phe Lys Asn Gly Lys Ser Leu Thr Pro Ser	
247 252 257 262	
gca tct act cca tat aga caa cta aaa agg cac ctt tcc atg cag tct	1168
Ala Ser Thr Pro Tyr Arg Gln Leu Lys Arg His Leu Ser Met Gln Ser	
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Phe Asp Glu Ser Gly Arg Arg Thr Thr Thr Ser Ser Ala Thr Thr Ser	
279 284 289 294	
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Thr Ile Gly Phe Arg Val Phe Ser Cys Leu Asp Asp Gly Met Gly His	
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Ala Ser Val Glu Arg Ile Leu Asp Thr Trp Gln Glu Glu Gly Ile Glu	
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Asn Ser Gln Glu Ile Leu Lys Ala Leu Asp Phe Ser Leu Asp Gly Asn	
327 332 337 342	
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Ile Asn Leu Thr Glu Leu Thr Leu Ala Leu Glu Asn Glu Leu Leu Val	
343 348 353 358	

acc aag aac agc att cac cag gcg gct ctg gcc agc ttt aag gct gaa	1456
Thr Lys Asn Ser Ile His Gln Ala Ala Leu Ala Ser Phe Lys Ala Glu	
359 364 369 374	
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Ile Arg His Leu Leu Glu Arg Val Asp Gln Val Val Arg Glu Lys Glu	
375 380 385 390	
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Lys Leu Arg Ser Asp Leu Asp Lys Ala Glu Lys Leu Lys Ser Leu Met	
391 396 401 406	
gcc tcg gag gtg gat gat cac cat gcg gcc ata gag cgg cgg aat gag	1600
Ala Ser Glu Val Asp Asp His His Ala Ala Ile Glu Arg Arg Asn Glu	
407 412 417 422	
tac aac ctc agg aaa ctg gat gaa gag tac aag gag cga ata gca gcc	1648
Tyr Asn Leu Arg Lys Leu Asp Glu Glu Tyr Lys Glu Arg Ile Ala Ala	
423 428 433 438	
tta aaa aat gaa ctc cga aaa gag aga gag cag atc ctg cag cag gca	1696
Leu Lys Asn Glu Leu Arg Lys Glu Arg Glu Gln Ile Leu Gln Gln Ala	
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ggc aag cag cgt tta gaa ctt gaa cag gaa att gaa aag gca aaa aca	1744
Gly Lys Gln Arg Leu Glu Leu Glu Gln Glu Ile Glu Lys Ala Lys Thr	
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gaa gag aac tat atc cgg gac cgc ctt gcc ctc tct tta aag gaa aac	1792
Glu Glu Asn Tyr Ile Arg Asp Arg Leu Ala Leu Ser Leu Lys Glu Asn	
471 476 481 486	
agt cgt ctg gaa aat gag ctt cta gaa aat gca gag aag ttg gca gaa	1840
Ser Arg Leu Glu Asn Glu Leu Leu Glu Asn Ala Glu Lys Leu Ala Glu	
487 492 497 502	
tat gag aat ctg aca aac aaa ctt cag aga aat ttg gaa aat gtg tta	1888
Tyr Glu Asn Leu Thr Asn Lys Leu Gln Arg Asn Leu Glu Asn Val Leu	
503 508 513 518	
gca gaa aag ttt ggt gac ctc gat cct agc agt gct gag ttc ttc ctg	1936
Ala Glu Lys Phe Gly Asp Leu Asp Pro Ser Ser Ala Glu Phe Phe Leu	
519 524 529 534	
caa gaa gag aga ctg aca cag atg aga aat gaa tat gag cgg cag tgc	1984
Gln Glu Glu Arg Leu Thr Gln Met Arg Asn Glu Tyr Glu Arg Gln Cys	
535 540 545 550	
agg gta cta caa gac caa gta gat gaa ctc cag tct gag ctg gaa gaa	2032
Arg Val Leu Gln Asp Gln Val Asp Glu Leu Gln Ser Glu Leu Glu Glu	
551 556 561 566	
tat cgt gca caa ggc aga gtg ctc agg ctt ccg ttg aag aac tca ccg	2080
Tyr Arg Ala Gln Gly Arg Val Leu Arg Leu Pro Leu Lys Asn Ser Pro	
567 572 577 582	
tca gaa gaa gtt gag gct aac agc ggt ggc att gaa ccc gaa cac ggg	2128

Ser Glu Glu Val Glu Ala Asn Ser Gly Gly Ile Glu Pro Glu His Gly  
583 588 593 598

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Leu Gly Ser Glu Glu Cys Asn Pro Leu Asn Met Ser Ile Glu Ala Glu  
599 604 609 614

ctg gtc att gaa cag atg aaa gaa caa cat cac agg gac ata tgt tgc 2224  
Leu Val Ile Glu Gln Met Lys Glu Gln His His Arg Asp Ile Cys Cys  
615 620 625 630

ctc aga ctg gag ctc gaa gat aaa gtg cgc cat tat gaa aag cag ctg 2272  
Leu Arg Leu Glu Leu Glu Asp Lys Val Arg His Tyr Glu Lys Gln Leu  
631 636 641 646

gac gaa acc gtg gtc agc tgc aag aag gca cag gag aac atg aag caa 2320  
Asp Glu Thr Val Val Ser Cys Lys Lys Ala Gln Glu Asn Met Lys Gln  
647 652 657 662

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663 668 673 678

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Lys Met Lys Ile Ala Glu Leu Gln Gly Gln Ala Ala Val Leu Lys Glu  
679 684 689 694

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Gln Val Lys Leu Glu Glu Glu Lys Thr His Leu Gln Glu Lys Leu Arg  
711 716 721 726

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727 732 737 742

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743 748 753 758

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791 796 801 806

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Glu Lys Met Glu Thr Glu Cys Asn Arg Arg Thr Ser Gln Ile Glu Ala

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Gln Phe Gln Ser Asp Cys Gln Lys Val Thr Glu Arg Cys Glu Ser Ala				
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ctg caa agc ctg gag ggg cgc tac cgc caa gag ctg aag gac ctc cag				2896
Leu Gln Ser Leu Glu Gly Arg Tyr Arg Gln Glu Leu Lys Asp Leu Gln				
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gaa cag cag cgt gag gag aaa tcc cag tgg gaa ttt gag aag gac gag				2944
Glu Gln Gln Arg Glu Glu Lys Ser Gln Trp Glu Phe Glu Lys Asp Glu				
855	860	865	870	
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Leu Thr Gln Glu Cys Ala Glu Ala Gln Glu Leu Leu Lys Glu Thr Leu				
871	876	881	886	
aag aga gag aaa aca act tct ctg gtc ctg acc cag gag aga gag atg				3040
Lys Arg Glu Lys Thr Thr Ser Leu Val Leu Thr Gln Glu Arg Glu Met				
887	892	897	902	
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Leu Glu Lys Thr Tyr Lys Asp His Leu Asn Ser Met Val Val Glu Arg				
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Gln Gln Leu Leu Gln Asp Leu Glu Asp Leu Arg Asn Val Ser Glu Thr				
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Gln Gln Ser Leu Leu Ser Asp Gln Ile Leu Glu Leu Lys Ser Ser His				
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967	972	977	982	
gac cag gaa agg cag gaa atg atg tcc aag ctt cta gcc atg gag aac				3328
Asp Gln Glu Arg Gln Glu Met Met Ser Lys Leu Leu Ala Met Glu Asn				
983	988	993	998	
att cac aaa gcg acc tgt gag aca gca gat cga gaa aga gcc gag atg				3376
Ile His Lys Ala Thr Cys Glu Thr Ala Asp Arg Glu Arg Ala Glu Met				
999	1004	1009	1014	
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Ser Thr Glu Ile Ser Arg Leu Gln Ser Lys Ile Lys Glu Met Gln Gln				
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Ala Thr Ser Pro Leu Ser Met Leu Gln Ser Gly Cys Gln Val Ile Gly				
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Asn Ser Glu Glu Thr Arg Thr Glu Ser Trp Glu Leu Lys Asn His Ile	
1191 1196 1201 1206	
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Ser Leu Leu Gln Glu Gln Leu Met Met Phe Cys Ala Asp Cys Asp Leu	
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Lys Leu Leu Tyr Glu Asp Val Ser Arg Glu Asn Asp Cys Leu Gln Glu	
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Cys Cys Leu Trp Glu Gly Ser Leu Glu Asn Leu Glu Ile Glu Pro Asp	
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1383 1388 1393 1398	
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Tyr Leu Glu Gly Asn Thr Gln Leu Leu Glu Lys Val Lys Ala His Glu	
1399 1404 1409 1414	
att gcc tgg ttt cat gga aca att cag aca cat cac gaa cgg cct aga	4624
Ile Ala Trp Phe His Gly Thr Ile Gln Thr His His Glu Arg Pro Arg	
1415 1420 1425 1430	
gta cag aat caa ttt ata ctg gag gaa aac act act ctc cta ggc ttt	4672
Val Gln Asn Gln Phe Ile Leu Glu Glu Asn Thr Thr Leu Leu Gly Phe	
1431 1436 1441 1446	
caa aac aaa cat ttt cag cat cag gcc aca ttg cca aat tta gaa ctg	4720
Gln Asn Lys His Phe Gln His Gln Ala Thr Leu Pro Asn Leu Glu Leu	
1447 1452 1457 1462	
gaa aaa caa aat ttc cag gag ctg act agg aat ttg agg gaa aaa ttc	4768
Glu Lys Gln Asn Phe Gln Glu Leu Thr Arg Asn Leu Arg Glu Lys Phe	
1463 1468 1473 1478	
cct att tta att tac caa aaa aat ttt ctt tct ccc gga aaa aag gag	4816
Pro Ile Leu Ile Tyr Gln Lys Asn Phe Leu Ser Pro Gly Lys Lys Glu	
1479 1484 1489 1494	
gaa gaa ctg aag gca atg atg cat gac ttg caa atc cct tgc agt gaa	4864

Glu Glu Leu Lys Ala Met Met His Asp Leu Gln Ile Pro Cys Ser Glu	
1495 1500 1505 1510	
atg cag caa aag gtt gaa ctt ctg aaa tat gaa tct gaa aag ctt cac	4912
Met Gln Gln Lys Val Glu Leu Leu Lys Tyr Glu Ser Glu Lys Leu His	
1511 1516 1521 1526	
cag gaa aat tct ttt ttg aga aat gaa att act act tta aat gaa gaa	4960
Gln Glu Asn Ser Phe Leu Arg Asn Glu Ile Thr Thr Leu Asn Glu Glu	
1527 1532 1537 1542	
gat agc att tct aac ctg aaa tta ggg aca tta aat gga tct cag gaa	5008
Asp Ser Ile Ser Asn Leu Lys Leu Gly Thr Leu Asn Gly Ser Gln Glu	
1543 1548 1553 1558	
gaa atg tgg caa aaa acg gaa tct gta aaa caa gaa aat gct gca gtt	5056
Glu Met Trp Gln Lys Thr Glu Ser Val Lys Gln Glu Asn Ala Ala Val	
1559 1564 1569 1574	
ctg aag atg gtt gaa aat tta aag aaa cag att tca gaa tta aaa atc	5104
Leu Lys Met Val Glu Asn Leu Lys Lys Gln Ile Ser Glu Leu Lys Ile	
1575 1580 1585 1590	
aaa aac caa caa ttg gat ttg gaa aat aca gaa ctt agc caa aag aac	5152
Lys Asn Gln Gln Leu Asp Leu Glu Asn Thr Glu Leu Ser Gln Lys Asn	
1591 1596 1601 1606	
tct cca aac cag gaa aaa ctg caa gaa ctt aat caa ctg cta aca gaa	5200
Ser Pro Asn Gln Glu Lys Leu Gln Glu Leu Asn Gln Leu Leu Thr Glu	
1607 1612 1617 1622	
atg cta tgc cag aag gaa aaa gag cca gga aac agt gca ttg gag gaa	5248
Met Leu Cys Gln Lys Glu Lys Glu Pro Gly Asn Ser Ala Leu Glu Glu	
1623 1628 1633 1638	
cgg gaa caa gag aag ttt aat ctg aaa gaa gaa ccg gaa cgt tgt aaa	5296
Arg Glu Gln Glu Lys Phe Asn Leu Lys Glu Glu Pro Glu Arg Cys Lys	
1639 1644 1649 1654	
gtg cag tcc tcc act tta gtg tct tct ctg gag gcg gag ctc tct gaa	5344
Val Gln Ser Ser Thr Leu Val Ser Ser Leu Glu Ala Glu Leu Ser Glu	
1655 1660 1665 1670	
gtt aac tac agg acc cct att gtg caa cag gaa aac ccc ctt ctc caa	5392
Val Asn Tyr Arg Thr Pro Ile Val Gln Gln Glu Asn Pro Leu Leu Gln	
1671 1676 1681 1686	
gat gaa ctg gag aaa atg aaa cag ctg cac aga tgt ccc gat ctc tcg	5440
Asp Glu Leu Glu Lys Met Lys Gln Leu His Arg Cys Pro Asp Leu Ser	
1687 1692 1697 1702	
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Asn Phe Gln Gln Lys Ile Ser Ser Val Leu Ser Tyr Asn Glu Lys Leu	
1703 1708 1713 1718	
ctg aaa gaa aag gaa gct ctg agt gag gaa tta aat agc tgt gtc gat	5536
Leu Lys Glu Lys Glu Ala Leu Ser Glu Glu Leu Asn Ser Cys Val Asp	



1719	1724	1729	1734	
aag ttg gca aaa tca agt ctt tta gag cat aga att gcg acg atg aag				5584
Lys Leu Ala Lys Ser Ser Leu Leu Glu His Arg Ile Ala Thr Met Lys				
1735	1740	1745	1750	
cag gaa cag aaa tcc tgg gaa cat cag agt gcg agc tta aag aca cag				5632
Gln Glu Gln Lys Ser Trp Glu His Gln Ser Ala Ser Leu Lys Thr Gln				
1751	1756	1761	1766	
ctg gtg gct tct cag gaa aag gtt cag aat tta gaa gac acc gtg cag				5680
Leu Val Ala Ser Gln Glu Lys Val Gln Asn Leu Glu Asp Thr Val Gln				
1767	1772	1777	1782	
aat gta aac ctg caa atg tcc cgg atg aaa tct gac cca cga gtg act				5728
Asn Val Asn Leu Gln Met Ser Arg Met Lys Ser Asp Pro Arg Val Thr				
1783	1788	1793	1798	
cag cag gaa aag gag gct tta aaa caa gaa gtg atg cct tta cat aag				5776
Gln Gln Glu Lys Glu Ala Leu Lys Gln Glu Val Met Pro Leu His Lys				
1799	1804	1809	1814	
caa ctt cag aat tct gtg gca aga gct ggc ccc aga gag ata gat cat				5824
Gln Leu Gln Asn Ser Val Ala Arg Ala Gly Pro Arg Glu Ile Asp His				
1815	1820	1825	1830	
cca tca ggg ttc cat aac cag cag aaa agg ctg tct tgg gac aag ttg				5872
Pro Ser Gly Phe His Asn Gln Gln Lys Arg Leu Ser Trp Asp Lys Leu				
1831	1836	1841	1846	
gat tat ctg atg aat gag gaa cag cag ttg ttt tgc aaa gag aat gag				5920
Asp Tyr Leu Met Asn Glu Glu Gln Gln Leu Phe Cys Lys Glu Asn Glu				
1847	1852	1857	1862	
agg ttc cag acc atg gta cag aac acc aaa gcc gaa tta acg cat tcc				5968
Arg Phe Gln Thr Met Val Gln Asn Thr Lys Ala Glu Leu Thr His Ser				
1863	1868	1873	1878	
cgg gag aag ttc cgt cag ttg gaa tcc aat ctt ctt ccc aag cac caa				6016
Arg Glu Lys Phe Arg Gln Leu Glu Ser Asn Leu Leu Pro Lys His Gln				
1879	1884	1889	1894	
aaa tat tta aac cca tca ggt acc atg aat ccc aca gag caa gaa aaa				6064
Lys Tyr Leu Asn Pro Ser Gly Thr Met Asn Pro Thr Glu Gln Glu Lys				
1895	1900	1905	1910	
ttg agc tta aag aga gag tgt gat cag ttt cag aaa gaa caa tct cct				6112
Leu Ser Leu Lys Arg Glu Cys Asp Gln Phe Gln Lys Glu Gln Ser Pro				
1911	1916	1921	1926	
gct aac agg aag gtc agt cag atg aat tcc ctt gaa caa gaa tta aaa				6160
Ala Asn Arg Lys Val Ser Gln Met Asn Ser Leu Glu Gln Glu Leu Lys				
1927	1932	1937	1942	
aca att cat ttg gaa aat gaa ggc ctg aaa aag aaa caa gta aaa ctg				6208
Thr Ile His Leu Glu Asn Glu Gly Leu Lys Lys Lys Gln Val Lys Leu				
1943	1948	1953	1958	



ttc gac tgc gcc gtg tgc ctt gag gtg tta cac cag cct gtc cgg acc	260
Phe Asp Cys Ala Val Cys Leu Glu Val Leu His Gln Pro Val Arg Thr	
35 40 45 50	
cgc tgt ggc cac gta ttc tgc cgt tcc tgt att gct acc agt cta aag	308
Arg Cys Gly His Val Phe Cys Arg Ser Cys Ile Ala Thr Ser Leu Lys	
51 56 61 66	
aac aac aag tgg acc tgt cct tat tgc cgg gca tat ctt cct tca gaa	356
Asn Asn Lys Trp Thr Cys Pro Tyr Cys Arg Ala Tyr Leu Pro Ser Glu	
67 72 77 82	
gga gtt cca gca act gat gta gcc aaa aga atg aaa tca gag tat aag	404
Gly Val Pro Ala Thr Asp Val Ala Lys Arg Met Lys Ser Glu Tyr Lys	
83 88 93 98	
aac tgc gct gag tgt gac acc ctg gtt tgc ctc agt gaa atg agg gca	452
Asn Cys Ala Glu Cys Asp Thr Leu Val Cys Leu Ser Glu Met Arg Ala	
99 104 109 114	
cat att cgg act tgt cag aag tac ata gat aag tat gga cca cta caa	500
His Ile Arg Thr Cys Gln Lys Tyr Ile Asp Lys Tyr Gly Pro Leu Gln	
115 120 125 130	
gaa ctt gag gag aca gca gca agg tgt gta tgt ccc ttt tgt cag agg	548
Glu Leu Glu Glu Thr Ala Ala Arg Cys Val Cys Pro Phe Cys Gln Arg	
131 136 141 146	
gaa ctg tat gaa gac agc ttg ctg gat cat tgt att act cat cac aga	596
Glu Leu Tyr Glu Asp Ser Leu Leu Asp His Cys Ile Thr His His Arg	
147 152 157 162	
tcg gaa cgg agg cct gtg ttc tgt cca ctt tgc cgt tta ata ccc gat	644
Ser Glu Arg Arg Pro Val Phe Cys Pro Leu Cys Arg Leu Ile Pro Asp	
163 168 173 178	
gag aat cca agc agc ttc agt ggc agt tta ata aga cat ctg caa gtt	692
Glu Asn Pro Ser Ser Phe Ser Gly Ser Leu Ile Arg His Leu Gln Val	
179 184 189 194	
agt cac act ttg ttt tat gat gat ttc ata gat ttt aat ata att gag	740
Ser His Thr Leu Phe Tyr Asp Asp Phe Ile Asp Phe Asn Ile Ile Glu	
195 200 205 210	
gaa gct ctt atc cga aga gtc tta gac cgg tca ctt ctt gaa tat gtg	788
Glu Ala Leu Ile Arg Arg Val Leu Asp Arg Ser Leu Leu Glu Tyr Val	
211 216 221 226	
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Asn His Ser Asn Thr Thr *	
227 232	
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gcaaaaatgt acaacacagt tatgtgtttg tccatgttta ttgttatagt gcatttaaaa	961

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 gggggctccg aggcgggggc tgggtgttga ggggcgactg gagcc atg gcg gag 174  
 Met Ala Glu  
 1  
 tcg gcg cct gct cgg cac agg aga aaa cga cgc tcc aca cct tta act 222  
 Ser Ala Pro Ala Arg His Arg Arg Lys Arg Arg Ser Thr Pro Leu Thr  
 4 9 14 19  
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 Ser Ser Thr Leu Pro Ser Gln Ala Thr Glu Lys Ser Ser Tyr Phe Gln  
 20 25 30 35  
 acc acc gag att tca ctc tgg acg gtg gtg gcc gct att cag gct gtg 318  
 Thr Thr Glu Ile Ser Leu Trp Thr Val Val Ala Ala Ile Gln Ala Val  
 36 41 46 51  
 gag aag aag atg gag tcc cag gct gcc cgg cta cag agc ctg gag ggg 366  
 Glu Lys Lys Met Glu Ser Gln Ala Ala Arg Leu Gln Ser Leu Glu Gly  
 52 57 62 67  
 cgc acg ggg aca gcc gag aag aag ctg gct gac tgc gag aag atg gcc 414  
 Arg Thr Gly Thr Ala Glu Lys Lys Leu Ala Asp Cys Glu Lys Met Ala  
 68 73 78 83  
 gtg gag ttc ggg aac cag ctg gag ggc aag tgg gcc gtg ctg ggg acc 462

Val	Glu	Phe	Gly	Asn	Gln	Leu	Glu	Gly	Lys	Trp	Ala	Val	Leu	Gly	Thr	
84					89					94					99	
ctg	ctg	cag	gag	tat	ggg	cta	ctg	cag	agg	cgg	ctg	gag	aac	gtg	gag	510
Leu	Leu	Gln	Glu	Tyr	Gly	Leu	Leu	Gln	Arg	Arg	Leu	Glu	Asn	Val	Glu	
100					105					110					115	
aac	ctg	ctg	cgc	aac	agg	aac	ttc	tgg	atc	ctg	cgg	ctg	ccc	ccg	ggc	558
Asn	Leu	Leu	Arg	Asn	Arg	Asn	Phe	Trp	Ile	Leu	Arg	Leu	Pro	Pro	Gly	
116					121					126					131	
agc	aag	ggg	gag	tcc	cct	aag	gtg	cct	atg	aca	ttt	gat	gat	gtg	gct	606
Ser	Lys	Gly	Glu	Ser	Pro	Lys	Val	Pro	Met	Thr	Phe	Asp	Asp	Val	Ala	
132					137					142					147	
gtg	tag	ttctctgagc	aagtgtgggg	caagcccagt	cgttcagaat	tggagccgag										662
Val	*															
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<211> 1832

<212> DNA

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<220>

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<222> (384)..(1832)

<400> 1079

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cccaaatttg	ccaagtgttt	acatttttcc	tgtttgcttt	gttgatgacc	atcaaccaa	240
taccaccagg	aacataacctg	taaccagaga	cagctgattg	gtagctttct	gcagcaagga	300
agctcacata	ccacggcaca	attctgcttt	ccctggaact	gtgtcattca	tgactctgca	360
aattccctaa	agtaggagga	aaa	atg acc atg tcc aag gag gca gtg acc			410
			Met Thr Met Ser Lys Glu Ala Val Thr			

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5

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Phe Lys Asp Val Ala Val Val Phe Thr Glu Glu Glu Leu Gly Leu Leu	
10 15 20 25	
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Asp Leu Ala Gln Arg Lys Leu Tyr Arg Asp Val Met Leu Glu Asn Phe	
26 31 36 41	
agg aac ctg ctg tca gtg ggg cat caa cca ttc cac cga gat act ttc	554
Arg Asn Leu Leu Ser Val Gly His Gln Pro Phe His Arg Asp Thr Phe	
42 47 52 57	
cac ttt cta agg gag gaa aag ttt tgg atg atg gat ata gca acc caa	602
His Phe Leu Arg Glu Glu Lys Phe Trp Met Met Asp Ile Ala Thr Gln	
58 63 68 73	
aga gaa ggg aat tca gga ggc aag atc caa cct gag atg aag act ttt	650
Arg Glu Gly Asn Ser Gly Gly Lys Ile Gln Pro Glu Met Lys Thr Phe	
74 79 84 89	
cca gaa gca gga cca cat gaa ggg tgg tcc tgc cag cag atc tgg gaa	698
Pro Glu Ala Gly Pro His Glu Gly Trp Ser Cys Gln Gln Ile Trp Glu	
90 95 100 105	
gaa att gca agt gat tta acc agg cct caa gac tct acc ata aag agc	746
Glu Ile Ala Ser Asp Leu Thr Arg Pro Gln Asp Ser Thr Ile Lys Ser	
106 111 116 121	
tct cag ttc ttt gaa cag ggt gat gcc cac tcc cag gtt gag gaa gga	794
Ser Gln Phe Phe Glu Gln Gly Asp Ala His Ser Gln Val Glu Glu Gly	
122 127 132 137	
ata tct ata atg cac aca gga cag aaa cct tcc aat tgt ggg aag agt	842
Ile Ser Ile Met His Thr Gly Gln Lys Pro Ser Asn Cys Gly Lys Ser	
138 143 148 153	
aaa caa tcc ttc agt gat atg tcc atc ttt gat ctt cct cag caa ata	890
Lys Gln Ser Phe Ser Asp Met Ser Ile Phe Asp Leu Pro Gln Gln Ile	
154 159 164 169	
cgc tca gca gag aag tct cat tcc tgt gat gag tgt gga aaa agc ttc	938
Arg Ser Ala Glu Lys Ser His Ser Cys Asp Glu Cys Gly Lys Ser Phe	
170 175 180 185	
tgt tac atc tca gca ctt cat att cat cag aga gtc cac ctg gga gag	986
Cys Tyr Ile Ser Ala Leu His Ile His Gln Arg Val His Leu Gly Glu	
186 191 196 201	
aaa ctc ttt aag tgt gac gtg tgt ggt aag gaa ttc agt cag agt tta	1034
Lys Leu Phe Lys Cys Asp Val Cys Gly Lys Glu Phe Ser Gln Ser Leu	
202 207 212 217	
cat ctg caa act cat cag aga gtc cat act gga gag aaa cct ttc aaa	1082
His Leu Gln Thr His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys	
218 223 228 233	

tgt gaa caa tgt ggg aga ggc ttc aga tgt aga tca gca ctt aca gtt	1130
Cys Glu Gln Cys Gly Arg Gly Phe Arg Cys Arg Ser Ala Leu Thr Val	
234 239 244 249	
cat tgc aaa tta cac atg gga gag aaa cat tat aat tgt gag gca tgt	1178
His Cys Lys Leu His Met Gly Glu Lys His Tyr Asn Cys Glu Ala Cys	
250 255 260 265	
ggg agg gcc ttc att cat gat ttc cag ctt cag aaa cat cag aga att	1226
Gly Arg Ala Phe Ile His Asp Phe Gln Leu Gln Lys His Gln Arg Ile	
266 271 276 281	
cat act ggg gag aag cca ttc aaa tgt gaa ata tgt ggt aag agc ttc	1274
His Thr Gly Glu Lys Pro Phe Lys Cys Glu Ile Cys Gly Lys Ser Phe	
282 287 292 297	
tgt ctt agg tca agt ctt aat agg cat tgc atg gtc cac aca gca gag	1322
Cys Leu Arg Ser Ser Leu Asn Arg His Cys Met Val His Thr Ala Glu	
298 303 308 313	
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Lys Leu Tyr Lys Ser Glu Lys Tyr Gly Arg Gly Phe Ile Asp Arg Leu	
314 319 324 329	
gat ttg cat aag cat cag atg att cat atg gga cag aaa cca tat aat	1418
Asp Leu His Lys His Gln Met Ile His Met Gly Gln Lys Pro Tyr Asn	
330 335 340 345	
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Cys Lys Glu Cys Gly Lys Ser Phe Lys Trp Ser Ser Tyr Leu Leu Val	
346 351 356 361	
cat caa cga gtc cac act gga gaa aag cca tac aaa tgt gag gag tgt	1514
His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys	
362 367 372 377	
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Gly Lys Gly Tyr Ile Ser Lys Ser Gly Leu Asp Leu His His Arg Ala	
378 383 388 393	
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His Thr Gly Glu Arg Pro Tyr Asn Cys Asp Asp Cys Gly Lys Ser Phe	
394 399 404 409	
aga cag gcc tca agt att ttg aat cat aag aga ctc cat tgc cga aaa	1658
Arg Gln Ala Ser Ser Ile Leu Asn His Lys Arg Leu His Cys Arg Lys	
410 415 420 425	
aaa cca ttc aaa tgt gag gat tgt gga aag aag ctt gta tac cgg tca	1706
Lys Pro Phe Lys Cys Glu Asp Cys Gly Lys Lys Leu Val Tyr Arg Ser	
426 431 436 441	
tac cgt aaa gac caa caa aaa aac cac agt gga gaa aat cca tcc aaa	1754
Tyr Arg Lys Asp Gln Gln Lys Asn His Ser Gly Glu Asn Pro Ser Lys	
442 447 452 457	
tgt gaa gac tgt ggg aag cgc tac aag agg cgc ttg aat ctt gat ata	1802

Cys Glu Asp Cys Gly Lys Arg Tyr Lys Arg Arg Leu Asn Leu Asp Ile  
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1832

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<400> 1080

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cggaaagcaa aggc atg att tca cct tca ctt gaa ctg ctt cat tca gga 170  
 Met Ile Ser Pro Ser Leu Glu Leu Leu His Ser Gly  
 1 5 10

ctc tgc aaa ttc cct gaa gta gaa gga aaa atg acc aca ttc aaa gag 218  
 Leu Cys Lys Phe Pro Glu Val Glu Gly Lys Met Thr Thr Phe Lys Glu  
 13 18 23 28

gca gtg aca ttc aag gat gtg gct gtg gtc ttc act gag gag gag ctg 266  
 Ala Val Thr Phe Lys Asp Val Ala Val Val Phe Thr Glu Glu Glu Leu  
 29 34 39 44

ggg ctg ctg gac cct gcc cag agg aag ctg tac cga gat gtg atg cta 314  
 Gly Leu Leu Asp Pro Ala Gln Arg Lys Leu Tyr Arg Asp Val Met Leu  
 45 50 55 60

gag aac ttc agg aac ctg ctc tca gta ggg aat caa cca ttc cac caa 362  
 Glu Asn Phe Arg Asn Leu Leu Ser Val Gly Asn Gln Pro Phe His Gln  
 61 66 71 76

gat act ttc cac ttc tta ggg aag gaa aag ttt tgg aag atg aag aca 410  
 Asp Thr Phe His Phe Leu Gly Lys Glu Lys Phe Trp Lys Met Lys Thr  
 77 82 87 92

aca agc caa aga gaa ggg aat tca gga ggc aag atc caa att gag atg 458  
 Thr Ser Gln Arg Glu Gly Asn Ser Gly Gly Lys Ile Gln Ile Glu Met  
 93 98 103 108

gag act gtt cca gaa gca gga cca cat gaa gag tgg tcc tgt cag caa 506  
 Glu Thr Val Pro Glu Ala Gly Pro His Glu Glu Trp Ser Cys Gln Gln  
 109 114 119 124



ata tgg gaa caa att gca agt gac cta acc agg tct caa aac tcc ata	554
Ile Trp Glu Gln Ile Ala Ser Asp Leu Thr Arg Ser Gln Asn Ser Ile	
125 130 135 140	
agg aac agc tct cag ttc ttc aaa gaa ggt gat gtc ccc tgc cag att	602
Arg Asn Ser Ser Gln Phe Phe Lys Glu Gly Asp Val Pro Cys Gln Ile	
141 146 151 156	
gag gca aga cta tct ata agt cac gtg caa cag aaa cct tac cgt tgt	650
Glu Ala Arg Leu Ser Ile Ser His Val Gln Gln Lys Pro Tyr Arg Cys	
157 162 167 172	
aat gaa tgt aaa cag tcc atc agt gat gtt tct gtc ttt gat ctt cat	698
Asn Glu Cys Lys Gln Ser Ile Ser Asp Val Ser Val Phe Asp Leu His	
173 178 183 188	
caa caa tca cac tca gga gag aaa tct cat aca tgt ggt gag tgt gga	746
Gln Gln Ser His Ser Gly Glu Lys Ser His Thr Cys Gly Glu Cys Gly	
189 194 199 204	
aaa agc ttc tgt tac agc cca gcc ctt cat att cat cag aga gtc cat	794
Lys Ser Phe Cys Tyr Ser Pro Ala Leu His Ile His Gln Arg Val His	
205 210 215 220	
atg gga gaa aaa tgc tat aag tgt gat gtg tgt ggt aag gaa ttt aat	842
Met Gly Glu Lys Cys Tyr Lys Cys Asp Val Cys Gly Lys Glu Phe Asn	
221 226 231 236	
cag agc tca cat ctg caa act cat cag aga gtc cat act gga gag aaa	890
Gln Ser Ser His Leu Gln Thr His Gln Arg Val His Thr Gly Glu Lys	
237 242 247 252	
cca ttc aaa cgt ggg caa tgt ggg aaa ggc ttc cat agt aga tca gca	938
Pro Phe Lys Arg Gly Gln Cys Gly Lys Gly Phe His Ser Arg Ser Ala	
253 258 263 268	
ctt aat gtt cat tgc aaa ttg cac aca gga gag aaa cct tat aat tgt	986
Leu Asn Val His Cys Lys Leu His Thr Gly Glu Lys Pro Tyr Asn Cys	
269 274 279 284	
gag gaa tgt ggg aaa gcc ttc att cat gat tca cag ctc cag gaa cat	1034
Glu Glu Cys Gly Lys Ala Phe Ile His Asp Ser Gln Leu Gln Glu His	
285 290 295 300	
cag aga atc cat act ggg gag aag cca ttc aaa tgt gat ata tgt ggt	1082
Gln Arg Ile His Thr Gly Glu Lys Pro Phe Lys Cys Asp Ile Cys Gly	
301 306 311 316	
aag agc ttc cgt gtt aga tca aga ctt aat agg cat tcc atg gtt cac	1130
Lys Ser Phe Arg Val Arg Ser Arg Leu Asn Arg His Ser Met Val His	
317 322 327 332	
aca gga gaa aaa cca ttc aga tgt gat aca tgt ggc aag aac ttt cgt	1178
Thr Gly Glu Lys Pro Phe Arg Cys Asp Thr Cys Gly Lys Asn Phe Arg	
333 338 343 348	
cag aga tca gca ctt aat agt cat tcc atg gtc cac ata gaa gag aag	1226

Gln Arg Ser Ala Leu Asn Ser His Ser Met Val His Ile Glu Glu Lys	
349 354 359 364	
cca tac aaa tgt gag caa tgt gga aaa ggc ttc att tgt agg cga gat	1274
Pro Tyr Lys Cys Glu Gln Cys Gly Lys Gly Phe Ile Cys Arg Arg Asp	
365 370 375 380	
ttt tgt aag cat cag atg gtc cac aca gga gag aaa cca tat aat tgt	1322
Phe Cys Lys His Gln Met Val His Thr Gly Glu Lys Pro Tyr Asn Cys	
381 386 391 396	
aaa gaa tgt ggg aag acc ttc aga tgg tcc tca tgt ctt ttg aac cat	1370
Lys Glu Cys Gly Lys Thr Phe Arg Trp Ser Ser Cys Leu Leu Asn His	
397 402 407 412	
cag caa gtc cac agt gga caa aaa tcc ttc aaa tgt gaa gaa tgt ggg	1418
Gln Gln Val His Ser Gly Gln Lys Ser Phe Lys Cys Glu Glu Cys Gly	
413 418 423 428	
aag gga ttt tat aca aat tca cga cga tct tcc cat cag aga tcc cac	1466
Lys Gly Phe Tyr Thr Asn Ser Arg Arg Ser Ser His Gln Arg Ser His	
429 434 439 444	
aat gga gaa aag cca tat aac tgt gag gag tgt ggt aag gac tat aaa	1514
Asn Gly Glu Lys Pro Tyr Asn Cys Glu Glu Cys Gly Lys Asp Tyr Lys	
445 450 455 460	
agg agg ttg gat ctt gag ttt cac cag agg gtc cac acg ggt gag aga	1562
Arg Arg Leu Asp Leu Glu Phe His Gln Arg Val His Thr Gly Glu Arg	
461 466 471 476	
ccc tat aat tgt aag gaa tgt ggc aag agc ttt ggc tgg gcc tcc tgt	1610
Pro Tyr Asn Cys Lys Glu Cys Gly Lys Ser Phe Gly Trp Ala Ser Cys	
477 482 487 492	
ctt ttg aaa cat cag aga ctc cac agt ggg gaa aaa cct ttc aaa tgt	1658
Leu Leu Lys His Gln Arg Leu His Ser Gly Glu Lys Pro Phe Lys Cys	
493 498 503 508	
gaa gag tgt gga aag aga ttt act cag agt aca caa ctt cat tcc cat	1706
Glu Glu Cys Gly Lys Arg Phe Thr Gln Ser Thr Gln Leu His Ser His	
509 514 519 524	
cag aca tgc cat act gga gaa aag cta tac aaa tgt gag cag tgt gag	1754
Gln Thr Cys His Thr Gly Glu Lys Leu Tyr Lys Cys Glu Gln Cys Glu	
525 530 535 540	
aag ggg tac aac agt aaa ttt aat ctt gac atg cac cag agg gtc cac	1802
Lys Gly Tyr Asn Ser Lys Phe Asn Leu Asp Met His Gln Arg Val His	
541 546 551 556	
agg gga gag cga ccc tat aat tgt aag gaa tgt gga aag agc ttt ggc	1850
Arg Gly Glu Arg Pro Tyr Asn Cys Lys Glu Cys Gly Lys Ser Phe Gly	
557 562 567 572	
tgg gct tca tgt ctt ttg aaa cat cag aga ctc cac agt gga gaa aag	1898
Trp Ala Ser Cys Leu Leu Lys His Gln Arg Leu His Ser Gly Glu Lys	

573	578	583	588	
cca ttg aaa tct gga gtg tgg gaa gag atc tac tca gaa ttc aca gct				1946
Pro Leu Lys Ser Gly Val Trp Glu Glu Ile Tyr Ser Glu Phe Thr Ala				
589	594	599	604	
tca ttt aca tca gta agt cta tgt ggg aga aaa gcc ata taa				1988
Ser Phe Thr Ser Val Ser Leu Cys Gly Arg Lys Ala Ile *				
605	610	615		

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 <213> Homo sapiens

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 <222> (252)..(1106)

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aacggcgcca ggtgaaggga ggtgacggag tgtgcccgcg cgcgcggggg tcccctcagt	180
cccagcagtt cccttcgtgc gcggggggcg gcgaggggtct tcagcagtcg ggagaggccc	240
ttgacggcgc c atg tcg gcg ggc ggt cca tgc cca gca gca gcc gga ggg	290
Met Ser Ala Gly Gly Pro Cys Pro Ala Ala Ala Gly Gly	
1 5 10	
ggc cca ggg ggc gcc tcc tgc tcc gtg ggg gcc cct ggc ggg gta tcc	338
Gly Pro Gly Gly Ala Ser Cys Ser Val Gly Ala Pro Gly Gly Val Ser	
14 19 24 29	
atg ttc cgg tgg ctg gag gtg ctg gag aag gag ttc gac aaa gct ttt	386
Met Phe Arg Trp Leu Glu Val Leu Glu Lys Glu Phe Asp Lys Ala Phe	
30 35 40 45	
gtg gat gtg gat ctg ctc ctg gga gag atc gat cca gac caa gcg gac	434
Val Asp Val Asp Leu Leu Leu Gly Glu Ile Asp Pro Asp Gln Ala Asp	
46 51 56 61	
atc act tat gag ggg cga cag aag atg acc agc ctg agc tcc tgc ttt	482
Ile Thr Tyr Glu Gly Arg Gln Lys Met Thr Ser Leu Ser Ser Cys Phe	
62 67 72 77	

gca cag ctt tgc cac aaa gcc cag tct gtg tct caa atc aac cac aag	530
Ala Gln Leu Cys His Lys Ala Gln Ser Val Ser Gln Ile Asn His Lys	
78 83 88 93	
ctg gag gca cag ttg gtg gat ctg aaa tct gaa ctg aca gaa acc caa	578
Leu Glu Ala Gln Leu Val Asp Leu Lys Ser Glu Leu Thr Glu Thr Gln	
94 99 104 109	
gca gag aaa gtt gtt ttg gag aaa gaa gta cat gat cag ctt tta cag	626
Ala Glu Lys Val Val Leu Glu Lys Glu Val His Asp Gln Leu Leu Gln	
110 115 120 125	
ctg cac tct att cag ctg cag ctt cat gct aaa act ggt caa agt gct	674
Leu His Ser Ile Gln Leu Gln Leu His Ala Lys Thr Gly Gln Ser Ala	
126 131 136 141	
gac tct ggt acc att aag gca aaa ttg gaa aga gag ctt gag gca aac	722
Asp Ser Gly Thr Ile Lys Ala Lys Leu Glu Arg Glu Leu Glu Ala Asn	
142 147 152 157	
aaa aaa gaa aaa atg aaa gaa gca caa ctt gaa gct gaa gtg aaa ttg	770
Lys Lys Glu Lys Met Lys Glu Ala Gln Leu Glu Ala Glu Val Lys Leu	
158 163 168 173	
ttg aga aaa gag aat gaa gcc ctt cgt aga cat ata gct gtt ctc cag	818
Leu Arg Lys Glu Asn Glu Ala Leu Arg Arg His Ile Ala Val Leu Gln	
174 179 184 189	
gct gaa gta tat ggg gcg aga cta gct gcc aag tac ttg gat aag gaa	866
Ala Glu Val Tyr Gly Ala Arg Leu Ala Ala Lys Tyr Leu Asp Lys Glu	
190 195 200 205	
ctg gca gga agg gtc caa cag ata caa ttg cta gga cga gat atg aag	914
Leu Ala Gly Arg Val Gln Gln Ile Gln Leu Leu Gly Arg Asp Met Lys	
206 211 216 221	
gga cct gct cat gat aag ctt tgg aac caa tta gaa gct gaa ata cat	962
Gly Pro Ala His Asp Lys Leu Trp Asn Gln Leu Glu Ala Glu Ile His	
222 227 232 237	
ttg cat cgt cac aaa act gtg atc cga gcc tgc aga gga cgt aat gac	1010
Leu His Arg His Lys Thr Val Ile Arg Ala Cys Arg Gly Arg Asn Asp	
238 243 248 253	
ttg aaa cga cca atg caa gca cca cca ggc cat gat caa gat tcc cta	1058
Leu Lys Arg Pro Met Gln Ala Pro Pro Gly His Asp Gln Asp Ser Leu	
254 259 264 269	
aag aaa agc caa ggt gtt ggt cca att aga aaa agt tct cct cct taa	1106
Lys Lys Ser Gln Gly Val Gly Pro Ile Arg Lys Ser Ser Pro Pro *	
270 275 280 285	
ggaagatcat gaaggccttg gcatttcaat tacagggtggg aaagaacatg gtgttccaat	1166
cctcatctct gagatccatc cggggcaacc tgctgataga tgcggagggc tgcacgttgg	1226
ggatgctatt ttggcagtca acggagttaa cctaaggggac acaaagcata aagaagctgt	1286

aactattcctt tctcagcaga gaggagagat tgaatttgaa gtagtttatg tggctcctga 1346  
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 gtaccttgat gagttagaag gaggtggtaa ccttggtgct agttgcaaag acacaagtgg 1466  
 ggaaatcaaa gtattacaag gatttaataa gaaggcagta actgacacac atgaaaatgg 1526  
 agacctgggc actgcaagtg aaactccgct agatgacggt gcttcaaaat tagatgatct 1586  
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 <212> DNA  
 <213> Homo sapiens

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 tttgattggc ttaaaatttt gcaaccgccc ggacaaactt gccgaggatt ggctgagcct 180  
 tcagttttga aaatcatagt tttcgcccgc gctgcgccgc ctggttgctc ctcccgtagc 240  
 gtgagtcccg aaggcccgga gccaaagtggg tctgggcaag cggggcctta cctagggata 300  
 ccaccggact tggatcggag cagccttcag gggacgtggc gcagtogaac agagccacc 359  
 atg ggg acg acg gcc cca ggg ccc att cac ctg ctg gag cta tgt gac 407  
 Met Gly Thr Thr Ala Pro Gly Pro Ile His Leu Leu Glu Leu Cys Asp  
 1 5 10 15  
 cag aag ctc atg gag ttt ctc tgc aac atg gat aat aag gac ttg gtg 455  
 Gln Lys Leu Met Glu Phe Leu Cys Asn Met Asp Asn Lys Asp Leu Val  
 17 22 27 32  
 tgg ctt gag gaa atc caa gag gag gcc gag cgc atg ttc acc aga gaa 503  
 Trp Leu Glu Glu Ile Gln Glu Glu Ala Glu Arg Met Phe Thr Arg Glu  
 33 38 43 48  
 ttc agc aaa gag cca gag ctg atg ccc aaa aca cct tct cag aag aac 551  
 Phe Ser Lys Glu Pro Glu Leu Met Pro Lys Thr Pro Ser Gln Lys Asn  
 49 54 59 64  
 cga cgg aag aag aga cgg att tct tat gtt cag gat gaa aac aga gat 599  
 Arg Arg Lys Lys Arg Arg Ile Ser Tyr Val Gln Asp Glu Asn Arg Asp

65	70	75	80	
ccc atc agg aga agg tta tcc cgc aga aag tct cgg agc agc cag ctg	647			
Pro Ile Arg Arg Arg Leu Ser Arg Arg Lys Ser Arg Ser Ser Gln Leu				
81 86 91 96				
agc tcc cga cgc ctc cgc agc aag gac agt gta gag aag ctg gct aca	695			
Ser Ser Arg Arg Leu Arg Ser Lys Asp Ser Val Glu Lys Leu Ala Thr				
97 102 107 112				
gtg gtc ggg gag aac ggc tcc gtt ctg cgg cgt gtg acc cgt gct gcg	743			
Val Val Gly Glu Asn Gly Ser Val Leu Arg Arg Val Thr Arg Ala Ala				
113 118 123 128				
gct gca gct gcc gcg gct acc atg gca ttg gct gca cct tct tca ccc	791			
Ala Ala Ala Ala Ala Ala Thr Met Ala Leu Ala Ala Pro Ser Ser Pro				
129 134 139 144				
acc cct gag tct ccc acg atg ctg act aag aag ccc gag gat aac cac	839			
Thr Pro Glu Ser Pro Thr Met Leu Thr Lys Lys Pro Glu Asp Asn His				
145 150 155 160				
acc cag tgc cag ctg gtg cct gtg gtg gag atc ggc atc agt gag cgc	887			
Thr Gln Cys Gln Leu Val Pro Val Val Glu Ile Gly Ile Ser Glu Arg				
161 166 171 176				
cag aat gct gag cag cat gtc acc cag ctc atg tcc acc gag cct ctg	935			
Gln Asn Ala Glu Gln His Val Thr Gln Leu Met Ser Thr Glu Pro Leu				
177 182 187 192				
ccc cgc act ctg tcc ccg act cca gct tca gcc aca gct cca acc tcc	983			
Pro Arg Thr Leu Ser Pro Thr Pro Ala Ser Ala Thr Ala Pro Thr Ser				
193 198 203 208				
cag ggc atc ccg aca tca gat gag gaa tca aca cct aag aag tcg aag	1031			
Gln Gly Ile Pro Thr Ser Asp Glu Glu Ser Thr Pro Lys Lys Ser Lys				
209 214 219 224				
gcc agg ata ctg gag tcc atc aca gtg agc tcc ctg atg gct aca ccc	1079			
Ala Arg Ile Leu Glu Ser Ile Thr Val Ser Ser Leu Met Ala Thr Pro				
225 230 235 240				
cag gac ccc aag ggt caa ggg gtc ggg acg ggg cgg tct gcg tct aag	1127			
Gln Asp Pro Lys Gly Gln Gly Val Gly Thr Gly Arg Ser Ala Ser Lys				
241 246 251 256				
ctc agg att gcg cag gtc tcc cct ggc cca cgg gac tcg cca gcc ttt	1175			
Leu Arg Ile Ala Gln Val Ser Pro Gly Pro Arg Asp Ser Pro Ala Phe				
257 262 267 272				
cca gat tct cca tgg cgg gag cgg gtg ctg gct ccc atc ctg ccg gat	1223			
Pro Asp Ser Pro Trp Arg Glu Arg Val Leu Ala Pro Ile Leu Pro Asp				
273 278 283 288				
aac ttc tcc acg ccc acg ggc tct cgc acg gac tct caa tcg gtg cgg	1271			
Asn Phe Ser Thr Pro Thr Gly Ser Arg Thr Asp Ser Gln Ser Val Arg				
289 294 299 304				

cac agc ccg atc gcc ccg tct tcc ccg agt ccc caa gtc tta gcc cag	1319
His Ser Pro Ile Ala Pro Ser Ser Pro Ser Pro Gln Val Leu Ala Gln	
305 310 315 320	

aag tac tct ctg gtg gcc aaa cag gaa agt gtt gtc cgc agg gcg agc	1367
Lys Tyr Ser Leu Val Ala Lys Gln Glu Ser Val Val Arg Arg Ala Ser	
321 326 331 336	

aga agg ctt gcc aag aag act gcc gaa gag cca gct gcc tct ggc cgc	1415
Arg Arg Leu Ala Lys Lys Thr Ala Glu Glu Pro Ala Ala Ser Gly Arg	
337 342 347 352	

atc atc tgt gag tct ggg ggc ttg gca gtg gcg ggt ggt cct tgg tgc	1463
Ile Ile Cys Glu Ser Gly Gly Leu Ala Val Ala Gly Gly Pro Trp Cys	
353 358 363 368	

cag gct cag atg gag gct ttc tga gggatcatct agcaaggagc tgtccagaga	1517
Gln Ala Gln Met Glu Ala Phe *	
369 374	

gctttctgca gtgaggtaga tgttacacat ctgtgctgtc ctgggatggt ggccgctagc	1577
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tggcctcatc tggcgattgt gtccctcaaaa tgtggctagt gtgattgagg aactgaatct	1637
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taaattgtat tgcattctac ttctttttaga tttaaatagt tacatgtagc tagtggcttc	1697
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cacgttggat ggtgcaggtc tgacccaacc tacttgcttt acaagtgagg aaactgagct	1757
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 <222> (162) .. (2843)

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gctcccacta ctgcgaggag tgaccacaga aggcacaga g	173
atg gcc ggt gct	
Met Ala Gly Ala	
1	

tcg gtg aag gtg gcg gtg cgg gtc cgc ccc ttc aat tcc cgg gaa atg	221
Ser Val Lys Val Ala Val Arg Val Arg Pro Phe Asn Ser Arg Glu Met	
5 10 15 20	

agc cgt gac tcc aag tgc atc att cag atg tct gga agc acc acc acc	269
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Ser	Arg	Asp	Ser	Lys	Cys	Ile	Ile	Gln	Met	Ser	Gly	Ser	Thr	Thr	Thr		
21					26					31					36		
att	gtt	aac	ccc	aaa	cag	ccc	aag	gag	acg	ccc	aaa	agc	ttc	agc	ttt	317	
Ile	Val	Asn	Pro	Lys	Gln	Pro	Lys	Glu	Thr	Pro	Lys	Ser	Phe	Ser	Phe		
37					42					47					52		
gac	tac	tcc	tac	tgg	gcg	cac	acc	tca	cct	gag	gac	atc	aac	tac	gcg	365	
Asp	Tyr	Ser	Tyr	Trp	Ala	His	Thr	Ser	Pro	Glu	Asp	Ile	Asn	Tyr	Ala		
53					58					63					68		
tcg	caa	aag	cag	gtg	tac	cgg	gac	atc	ggc	gag	gag	atg	ctg	cag	cat	413	
Ser	Gln	Lys	Gln	Val	Tyr	Arg	Asp	Ile	Gly	Glu	Glu	Met	Leu	Gln	His		
69					74					79					84		
gcc	ttt	gag	gga	tac	aac	gtg	tgc	atc	ttc	gcc	tat	ggg	cag	acg	ggt	461	
Ala	Phe	Glu	Gly	Tyr	Asn	Val	Cys	Ile	Phe	Ala	Tyr	Gly	Gln	Thr	Gly		
85					90					95					100		
gcc	ggc	aag	tcc	tac	acc	atg	atg	ggc	aag	cag	gag	aag	gac	cag	cag	509	
Ala	Gly	Lys	Ser	Tyr	Thr	Met	Met	Gly	Lys	Gln	Glu	Lys	Asp	Gln	Gln		
101					106					111					116		
ggc	atc	atc	cca	cag	ctc	tgc	gag	gac	ctc	ttc	tct	cgg	atc	aac	gac	557	
Gly	Ile	Ile	Pro	Gln	Leu	Cys	Glu	Asp	Leu	Phe	Ser	Arg	Ile	Asn	Asp		
117					122					127					132		
acg	acc	aac	gac	aac	atg	tcc	tac	tcc	gtg	gag	gtc	agc	tac	atg	gag	605	
Thr	Thr	Asn	Asp	Asn	Met	Ser	Tyr	Ser	Val	Glu	Val	Ser	Tyr	Met	Glu		
133					138					143					148		
att	tac	tgt	gag	cgc	gtc	cgt	gac	ctc	ctg	aac	ccc	aag	aac	aag	ggc	653	
Ile	Tyr	Cys	Glu	Arg	Val	Arg	Asp	Leu	Leu	Asn	Pro	Lys	Asn	Lys	Gly		
149					154					159					164		
aac	ctt	cgc	gtg	agg	gag	cac	cca	ctg	ctg	ggg	ccc	tac	gtg	gag	gac	701	
Asn	Leu	Arg	Val	Arg	Glu	His	Pro	Leu	Leu	Gly	Pro	Tyr	Val	Glu	Asp		
165					170					175					180		
ctc	tcc	aag	ctg	gct	gtc	acc	tcc	tac	aat	gac	atc	cag	gac	ctc	atg	749	
Leu	Ser	Lys	Leu	Ala	Val	Thr	Ser	Tyr	Asn	Asp	Ile	Gln	Asp	Leu	Met		
181					186					191					196		
gac	tca	ggg	aac	aag	gcc	agg	acc	gtg	gcg	gcc	acc	aac	atg	aat	gag	797	
Asp	Ser	Gly	Asn	Lys	Ala	Arg	Thr	Val	Ala	Ala	Thr	Asn	Met	Asn	Glu		
197					202					207					212		
acc	agc	agt	cgc	tcc	cac	gcc	gtc	ttc	aac	atc	atc	ttc	acc	cag	aag	845	
Thr	Ser	Ser	Arg	Ser	His	Ala	Val	Phe	Asn	Ile	Ile	Phe	Thr	Gln	Lys		
213					218					223					228		
cgc	cat	gac	gca	gag	acc	aat	atc	acc	acg	gag	aag	gtg	agc	aaa	atc	893	
Arg	His	Asp	Ala	Glu	Thr	Asn	Ile	Thr	Thr	Glu	Lys	Val	Ser	Lys	Ile		
229					234					239					244		
agc	ctg	gtg	gac	ctg	gct	ggg	agc	gag	cgg	gct	gac	tcc	acg	gga	gcc	941	
Ser	Leu	Val	Asp	Leu	Ala	Gly	Ser	Glu	Arg	Ala	Asp	Ser	Thr	Gly	Ala		



245	250	255	260	
aag ggc acg cgc ctc	aag gag ggg gcc aac	atc aac aag tcg ctg	acc	989
Lys Gly Thr Arg Leu	Lys Glu Gly Ala Asn	Ile Asn Lys Ser Leu	Thr	
261	266	271	276	
acc ctg ggc aag gtc	atc tcc gcc ctg gct	gaa atg gac tcc gga	ccc	1037
Thr Leu Gly Lys Val	Ile Ser Ala Leu Ala	Glu Met Asp Ser Gly	Pro	
277	282	287	292	
aac aag aac aag aaa	aag aag aag aca gat	ttc att ccg tac cga	gat	1085
Asn Lys Asn Lys Lys	Lys Lys Lys Thr Asp	Phe Ile Pro Tyr Arg	Asp	
293	298	303	308	
tcc gtg ttg acc tgg	ctc ctc cgg gaa aac	ctg ggc ggt aac tca	agg	1133
Ser Val Leu Thr Trp	Leu Leu Arg Glu Asn	Leu Gly Gly Asn Ser	Arg	
309	314	319	324	
aca gct atg gtg gca	gcc ctg agt cct gca	gac atc aac tac gat	gag	1181
Thr Ala Met Val Ala	Ala Leu Ser Pro Ala	Asp Ile Asn Tyr Asp	Glu	
325	330	335	340	
acc ctt agc acg ctg	agg tat gct gac cgg	gcc aag cag atc cgc	tgc	1229
Thr Leu Ser Thr Leu	Arg Tyr Ala Asp Arg	Ala Lys Gln Ile Arg	Cys	
341	346	351	356	
aat gct gtc atc aat	gag gac ccc aac aac	aag ctg atc cgc gag	ctg	1277
Asn Ala Val Ile Asn	Glu Asp Pro Asn Asn	Lys Leu Ile Arg Glu	Leu	
357	362	367	372	
aag gat gag gtg acc	cgg ctg cgg gac ctt	ctg tac gcc cag ggt	ctt	1325
Lys Asp Glu Val Thr	Arg Leu Arg Asp Leu	Leu Tyr Ala Gln Gly	Leu	
373	378	383	388	
ggc gac atc act gac	atg acc aat gcc ctg	gtg ggt atg agc ccc	tca	1373
Gly Asp Ile Thr Asp	Met Thr Asn Ala Leu	Val Gly Met Ser Pro	Ser	
389	394	399	404	
tcc tcg ctc tca gcc	ctg tcc agc cgc gcg	gcc tcc gtg tcc agc	ctc	1421
Ser Ser Leu Ser Ala	Leu Ser Ser Arg Ala	Ala Ser Val Ser Ser	Leu	
405	410	415	420	
cac gag cgc atc ttg	ttt gcc ccg ggc agc	gag gag gcc att gaa	aga	1469
His Glu Arg Ile Leu	Phe Ala Pro Gly Ser	Glu Glu Ala Ile Glu	Arg	
421	426	431	436	
ctg aag gaa aca gag	aag atc ata gct gag	ctc aat gag acc tgg	gag	1517
Leu Lys Glu Thr Glu	Lys Ile Ile Ala Glu	Leu Asn Glu Thr Trp	Glu	
437	442	447	452	
gag aag ctg cgg cgg	aca gaa gcc atc cgg	atg gag agg gaa gcc	ctg	1565
Glu Lys Leu Arg Arg	Thr Glu Ala Ile Arg	Met Glu Arg Glu Ala	Leu	
453	458	463	468	
ctg gcc gag atg ggt	gtg gcc atg agg gag	gat ggc ggc acc ttg	ggc	1613
Leu Ala Glu Met Gly	Val Ala Met Arg Glu	Asp Gly Gly Thr Leu	Gly	
469	474	479	484	

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ggg	act	gag	gac	cat	cac	atg	ctt	ctg	cct	gtc	acg	gat	act	cag	tct	1841
Gly	Thr	Glu	Asp	His	His	Met	Leu	Leu	Pro	Val	Thr	Asp	Thr	Gln	Ser	
570					575					580					585	
cct	aca	tca	gat	aca	ttg	ttg	agg	tca	act	gtg	aat	ggg	tat	tca	gaa	1889
Pro	Thr	Ser	Asp	Thr	Leu	Leu	Arg	Ser	Thr	Val	Asn	Gly	Tyr	Ser	Glu	
586					591					596					601	
cca	cag	ttg	att	ttt	tta	caa	caa	tta	tac	tga	ctttgtaa	ggaatatgga				1940
Pro	Gln	Leu	Ile	Phe	Leu	Gln	Gln	Leu	Tyr	*						

602

607

612

attgctaaga tatcattggt agcaaaccatc tctggtaagg tgcataatatt catattaaat 2000  
 tcccattcat ttgagttgtg accattatatt ttcatcact gaagtaaaag cacctgatgc 2060  
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 gagtattctg gagaaaacca atggtcagca cttttgggtt gagttatctg agattgtatt 2600  
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 ctgaattcca gaaagaattt tctagatata aacttaatgc atactagaaa tcacttggct 2840  
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&lt;210&gt; 1085

&lt;211&gt; 2817

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (109) .. (2817)

&lt;400&gt; 1085

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ttgtgggtgt cccggagcca gagggccaat tctgtcccc ccagcagc atg gca tog 117  
 Met Ala Ser

1

tgt gct gaa ccc tct gag ccc tct gcc cca ctg ccc gcc ggg gtc cca 165  
 Cys Ala Glu Pro Ser Glu Pro Ser Ala Pro Leu Pro Ala Gly Val Pro

4	9	14	19	
ccg ctc gag gac ttc	gag gta ctg gat	ggg gtt gag gat	gca cag ggt	213
Pro Leu Glu Asp Phe	Glu Val Leu Asp Gly	Val Glu Asp Ala Gln	Gly	
20	25	30	35	
gag gag gaa gag gag	gag gaa gag gag	gaa gag gat gac	ctg agt gag	261
Glu Glu Glu Glu Glu	Glu Glu Glu Glu Glu	Glu Asp Asp Leu Ser	Glu	
36	41	46	51	
ctg cca ccg ttg gag	gag act ggg gag	ggc cgg cgg ggc	gcg gag gag	309
Leu Pro Pro Leu Glu	Glu Thr Gly Glu Gly	Arg Arg Gly Ala Glu	Glu	
52	57	62	67	
gag gat ctg ggg gaa	gag gag gag gag	ggc cag gcg cac	ctg gag gac	357
Glu Asp Leu Gly Glu	Glu Glu Glu Glu Gly	Gln Ala His Leu Glu	Asp	
68	73	78	83	
tgg agg ggg cag ctc	agt gag ctt ctg	aac gac ttt gag	gag agg ctt	405
Trp Arg Gly Gln Leu	Ser Glu Leu Leu Asn	Asp Phe Glu Glu Arg	Leu	
84	89	94	99	
gaa gac cag gaa cgc	ctg aaa ccc gaa	gga caa aga gaa	cac tcc gag	453
Glu Asp Gln Glu Arg	Leu Lys Pro Glu Gly	Gln Arg Glu His Ser	Glu	
100	105	110	115	
gag cca ggt att tgc	gag gag cag aac	cca gag gcc gag	cgg cga aga	501
Glu Pro Gly Ile Cys	Glu Glu Gln Asn Pro	Glu Ala Glu Arg Arg	Arg	
116	121	126	131	
gag cag cag gga agg	agc ggg gat ttc	cag ggg gcc gat	cgt cct ggg	549
Glu Gln Gln Gly Arg	Ser Gly Asp Phe Gln	Gly Ala Asp Arg Pro	Gly	
132	137	142	147	
ccc gag gaa aag aga	gaa gaa ggg gac	acg gag cct ctc	ctg aaa caa	597
Pro Glu Glu Lys Arg	Glu Glu Gly Asp Thr	Glu Pro Leu Leu Lys	Gln	
148	153	158	163	
gag ggg ccg gtg gaa	gcc gcg cag cct	ccg gtg gag agg	aaa gaa gcc	645
Glu Gly Pro Val Glu	Ala Ala Gln Pro Pro	Val Glu Arg Lys Glu	Ala	
164	169	174	179	
gcc gcc ctt gaa caa	ggc cgc aag gtg	gag gag ctg cgg	tgg cag gag	693
Ala Ala Leu Glu Gln	Gly Arg Lys Val Glu	Glu Leu Arg Trp Gln	Glu	
180	185	190	195	
gtg gac gag aga cag	acc atg ccc ccg	ccc tac acg ttc	cag gtg tcc	741
Val Asp Glu Arg Gln	Thr Met Pro Arg Pro	Tyr Thr Phe Gln Val	Ser	
196	201	206	211	
tcc gga ggg aag cag	att ctc ttt ccc	aaa gtc aac ctg	agc ccc gtg	789
Ser Gly Gly Lys Gln	Ile Leu Phe Pro Lys	Val Asn Leu Ser Pro	Val	
212	217	222	227	
acg ccc gca aag gac	acg ggg ctc acc	gct gct ccc cag	gaa cca aag	837
Thr Pro Ala Lys Asp	Thr Gly Leu Thr Ala	Ala Pro Gln Glu Pro	Lys	
228	233	238	243	

gcc ccc aaa gcc agc cca gtc cag cac gcc cta ccg tcg tcc ctg agc	885
Ala Pro Lys Ala Ser Pro Val Gln His Ala Leu Pro Ser Ser Leu Ser	
244 249 254 259	
ggt ccc cac acc gcc att ctg gtc acg ggc gcg cag ctc tgt ggc ccg	933
Val Pro His Thr Ala Ile Leu Val Thr Gly Ala Gln Leu Cys Gly Pro	
260 265 270 275	
gca gtc aac ctg agc cag atc aag gac acc gcg tgc aag tcc ctc ctg	981
Ala Val Asn Leu Ser Gln Ile Lys Asp Thr Ala Cys Lys Ser Leu Leu	
276 281 286 291	
ggc ttg gag gag aag aag cac gcg gaa gcc cca gct ggg gag aac cct	1029
Gly Leu Glu Glu Lys Lys His Ala Glu Ala Pro Ala Gly Glu Asn Pro	
292 297 302 307	
ccc cga ggc ccc ggc gac gcg agg gcg ggc agc ggg aag gct aag ccc	1077
Pro Arg Gly Pro Gly Asp Ala Arg Ala Gly Ser Gly Lys Ala Lys Pro	
308 313 318 323	
ccc cag gag tct ccc agc agc gcg tcc gca ctc gca gaa tgg gct tcc	1125
Pro Gln Glu Ser Pro Ser Ser Ala Ser Ala Leu Ala Glu Trp Ala Ser	
324 329 334 339	
att cgg tcc aga atc ctg aag aac gca gag agt gac ccg cgc agc agc	1173
Ile Arg Ser Arg Ile Leu Lys Asn Ala Glu Ser Asp Pro Arg Ser Ser	
340 345 350 355	
gag agg gac cag ttg agg ccc ggt gat gag tcc act ccc agg ggc cgg	1221
Glu Arg Asp Gln Leu Arg Pro Gly Asp Glu Ser Thr Pro Arg Gly Arg	
356 361 366 371	
tgt gat tcc cgc ggg aac caa cgg aag act ccg cca gtc aat gca aag	1269
Cys Asp Ser Arg Gly Asn Gln Arg Lys Thr Pro Pro Val Asn Ala Lys	
372 377 382 387	
ttc tct att atg cct gcc tgg cag aaa ttt tcc gat ggt ggc acg gag	1317
Phe Ser Ile Met Pro Ala Trp Gln Lys Phe Ser Asp Gly Gly Thr Glu	
388 393 398 403	
acc tcc aaa cag agc acg gaa gct gaa agc ata cga aaa aga ccc atg	1365
Thr Ser Lys Gln Ser Thr Glu Ala Glu Ser Ile Arg Lys Arg Pro Met	
404 409 414 419	
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Leu Gly Pro Ser Glu Glu Thr Ala Pro Gln Pro Pro Pro Ala Gly Val	
420 425 430 435	
cgc gag ctc ggg aag ggt ccg gag aag tcg gag atg cac cgg gag ccc	1461
Arg Glu Leu Gly Lys Gly Pro Glu Lys Ser Glu Met His Arg Glu Pro	
436 441 446 451	
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Ala Asp Thr Thr Glu Gly Cys Lys Phe Ala Lys Asp Leu Pro Ser Phe	
452 457 462 467	

ctt gtc cca agc ctt cct tac cct ccg cag aaa gtg gtg gcc cac aca	1557
Leu Val Pro Ser Leu Pro Tyr Pro Pro Gln Lys Val Val Ala His Thr	
468 473 478 483	
gag ttc acg acc tcg tcg gac agc gag act gca aac ggg ata gca aag	1605
Glu Phe Thr Thr Ser Ser Asp Ser Glu Thr Ala Asn Gly Ile Ala Lys	
484 489 494 499	
cca gac cct gtg atg cca ggt gga gag gaa aaa gcc tca ccg ttt gga	1653
Pro Asp Pro Val Met Pro Gly Gly Glu Glu Lys Ala Ser Pro Phe Gly	
500 505 510 515	
ata aaa ttg aga agg acc aac tat tcc ttg cgc ttc aac tgc gac caa	1701
Ile Lys Leu Arg Arg Thr Asn Tyr Ser Leu Arg Phe Asn Cys Asp Gln	
516 521 526 531	
cag gca gaa cag aag aag aag aag agg cac agc agc acc gga gac agc	1749
Gln Ala Glu Gln Lys Lys Lys Lys Arg His Ser Ser Thr Gly Asp Ser	
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gcg gat gca ggg ccg cct gca gcg ggg agc gct cgt gga gag aaa gag	1797
Ala Asp Ala Gly Pro Pro Ala Ala Gly Ser Ala Arg Gly Glu Lys Glu	
548 553 558 563	
atg gag ggt gtg gcc ctc aag cat ggt cca tcc ctc ccc caa gag cgg	1845
Met Glu Gly Val Ala Leu Lys His Gly Pro Ser Leu Pro Gln Glu Arg	
564 569 574 579	
aag caa gcc cct tcc acc cgg agg gac tcc gct gaa cct tcc agc agc	1893
Lys Gln Ala Pro Ser Thr Arg Arg Asp Ser Ala Glu Pro Ser Ser Ser	
580 585 590 595	
cgc tct gtt cct gtg gcc cac cct ggg cct cca ccg gcc agc agc cag	1941
Arg Ser Val Pro Val Ala His Pro Gly Pro Pro Pro Ala Ser Ser Gln	
596 601 606 611	
acc ccg gct ccg gag cac gac aag gca gca aac aaa atg cca ctg gca	1989
Thr Pro Ala Pro Glu His Asp Lys Ala Ala Asn Lys Met Pro Leu Ala	
612 617 622 627	
caa aag cca gca ctg gct ccc aag ccc acc agt cag acc cca cca gca	2037
Gln Lys Pro Ala Leu Ala Pro Lys Pro Thr Ser Gln Thr Pro Pro Ala	
628 633 638 643	
tcc cca ctt tcc aaa ctg agc agg ccc tac ttg gta gag ctg ctg tct	2085
Ser Pro Leu Ser Lys Leu Ser Arg Pro Tyr Leu Val Glu Leu Leu Ser	
644 649 654 659	
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Arg Arg Ala Gly Arg Pro Asp Pro Glu Pro Ser Glu Pro Ser Lys Glu	
660 665 670 675	
gac cag gag agc agt gac cgc cgg cca ccc tcg ccc cca ggc ccc gag	2181
Asp Gln Glu Ser Ser Asp Arg Arg Pro Pro Ser Pro Pro Gly Pro Glu	
676 681 686 691	
gaa agg aag gga cag aag agg gac gag gag gaa gag gcg aca gag agg	2229

Glu Arg Lys Gly Gln Lys Arg Asp Glu Glu Glu Glu Ala Thr Glu Arg  
692 697 702 707

aaa cct gct tcc cca cct ctg cct gcc act cag caa gag aaa cct tct 2277  
Lys Pro Ala Ser Pro Pro Leu Pro Ala Thr Gln Gln Glu Lys Pro Ser  
708 713 718 723

caa aca ccc gag gcc ggg agg aaa gag aag ccg atg ctt cag agc aga 2325  
Gln Thr Pro Glu Ala Gly Arg Lys Glu Lys Pro Met Leu Gln Ser Arg  
724 729 734 739

cac tcc tta gat ggc tcc aaa ctt aca gag aaa gtg gaa act gct cag 2373  
His Ser Leu Asp Gly Ser Lys Leu Thr Glu Lys Val Glu Thr Ala Gln  
740 745 750 755

ccg ctg tgg ata acg tta gca ctg caa aag caa aag ggg ttt cgg gag 2421  
Pro Leu Trp Ile Thr Leu Ala Leu Gln Lys Gln Lys Gly Phe Arg Glu  
756 761 766 771

cag cag gcg acg cgg gag gag aga aag caa gcc aga gag gcc aaa cag 2469  
Gln Gln Ala Thr Arg Glu Glu Arg Lys Gln Ala Arg Glu Ala Lys Gln  
772 777 782 787

gca gaa aag ctc tcc aaa gaa aat gtc agt gtc agc gtg cag cct gga 2517  
Ala Glu Lys Leu Ser Lys Glu Asn Val Ser Val Ser Val Gln Pro Gly  
788 793 798 803

agc agc agt gtc agc aga gca ggt tcc ctg cac aag tcc act gct ctg 2565  
Ser Ser Ser Val Ser Arg Ala Gly Ser Leu His Lys Ser Thr Ala Leu  
804 809 814 819

cca gaa gag aag aga ccc gag act gca gtg tcc agg ctt gag cgc aga 2613  
Pro Glu Glu Lys Arg Pro Glu Thr Ala Val Ser Arg Leu Glu Arg Arg  
820 825 830 835

gaa cag ctg aaa aag gcc aat act ctt cct acg tct gtg aca gtg gag 2661  
Glu Gln Leu Lys Lys Ala Asn Thr Leu Pro Thr Ser Val Thr Val Glu  
836 841 846 851

atc tcc gac tcg gct ccc cca gcg ccg ctg gta aaa gaa gtc acc aag 2709  
Ile Ser Asp Ser Ala Pro Pro Ala Pro Leu Val Lys Glu Val Thr Lys  
852 857 862 867

agg ttt tcc acc ccg gat gct gcc ccc gtg tca aca gaa cca gcc tgg 2757  
Arg Phe Ser Thr Pro Asp Ala Ala Pro Val Ser Thr Glu Pro Ala Trp  
868 873 878 883

ctg gct ttg gcc aaa agg aaa gca aag gct tgg agc gac tgt cca cag 2805  
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 Cys Leu His Lys Ser Arg Ile Ala Asp Leu Gln Asp Val Leu Lys Glu  
 3 8 13 18

ccc tca att gca ttg gaa aag ctg cgg gaa ctc agc ttt agt ggc atc 151  
 Pro Ser Ile Ala Leu Glu Lys Leu Arg Glu Leu Ser Phe Ser Gly Ile  
 19 24 29 34

ccc tgt gag ggc gga ctg cgg tgc ctc tgc tgg aag att ctc ttg aac 199  
 Pro Cys Glu Gly Gly Leu Arg Cys Leu Cys Trp Lys Ile Leu Leu Asn  
 35 40 45 50

tac ctt ccc ttg gag agg gcc tca tgg acc tcc atc ctg gcc aag cag 247  
 Tyr Leu Pro Leu Glu Arg Ala Ser Trp Thr Ser Ile Leu Ala Lys Gln  
 51 56 61 66

agg gag ctg tat gcc cag ttc ctg agg gaa atg atc atc cag cct ggc 295  
 Arg Glu Leu Tyr Ala Gln Phe Leu Arg Glu Met Ile Ile Gln Pro Gly  
 67 72 77 82

att gcc aag gcc aac atg ggt gtg tcc agg gag gat gtg act ttt gag 343  
 Ile Ala Lys Ala Asn Met Gly Val Ser Arg Glu Asp Val Thr Phe Glu  
 83 88 93 98

gac cat tca ctc aac ccc aac cct gac agc cgg tgg aac acg tac ttc 391  
 Asp His Ser Leu Asn Pro Asn Pro Asp Ser Arg Trp Asn Thr Tyr Phe  
 99 104 109 114

aag gac aac gag gtg ctg ctg cag atc gac aaa gat gtc cgg tag g 437  
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<222> (1716)..(1856)

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gtaaagtgtg cgccgctttc tagggacccc gccccaccgg ctgggactct tccatgcagt	300
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acaggaatgg tagtgctatt ggccttcag tcccacctat cacagcetta atcaccccag	540
gtcctgttcg tcattgcaa attcctgact tgccgtgga tgggagccta ctctttgaat	600
tccttttttt catctacctg ttggttgctc ttttcattca gtacatcaac atttataaaa	660
cagtgtgggtg gtatccttac aatcatcctg cttctgttac atcactgaat tttcatctca	720
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cctactgtgg ttgatcttaa catgggtatc aggagtttcc ttgaatttaa tctagccctt 1680

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Met Val Trp Met Ser Leu  
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ggg ccc aaa atc ttt tgg tac att tta gtg ccc ttt ctt cac cca ttc 1781  
Gly Pro Lys Ile Phe Trp Tyr Ile Leu Val Pro Phe Leu His Pro Phe  
7 12 17 22

aga agt act tct gca gct gga atg gtc ctt cag aga aca ctc agt tct 1829  
Arg Ser Thr Ser Ala Ala Gly Met Val Leu Gln Arg Thr Leu Ser Ser  
23 28 33 38

tct aga aag gag aca ctt aaa ata taa ttgcc tctccctccc atccctaact 1881  
Ser Arg Lys Glu Thr Leu Lys Ile \*  
39 44

catacagcca gaaagtcagg ttgaaggatt gtggaggact ctgctcttga acttttctgc 1941

acggacagca ggaccaccag tgcattgtgtg actcagtgtg gcatttgtct gcagggcata 2001

tgtacaccaa cccatccctg cctcttttta ccagtgcattg gatcatttct ctctcttctg 2061

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<210> 1088

<211> 826

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (529) .. (795)

<400> 1088

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tgcacacccg gaagcagatc gcgcggggaa aagatcacag cgctgcgcgt cagtttccgt	180
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ccccttcgcc ccaaggtctt gctctgtcag actagagtac agtgccatga tctccgctca	360
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acgggagcca ccacgccagg cctacgagat ttgacttgta aagaattaat tatattgact	480
gagagagaag cccagaagag gaagaagagg aaagaaaagg agtcaggg atg gct ctt	537
Met Ala Leu	
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aca cag gga cct ttg aca ttc agg gat gta gcc ata gaa ttc tct cag	585
Thr Gln Gly Pro Leu Thr Phe Arg Asp Val Ala Ile Glu Phe Ser Gln	
4 9 14 19	
gag gag tgg aaa tcc ctg gac cct gtg cag aaa gct ttg tac tgg gat	633
Glu Glu Trp Lys Ser Leu Asp Pro Val Gln Lys Ala Leu Tyr Trp Asp	
20 25 30 35	
gtg atg ttg gag aac tac agg aac ctg gtc ttc ctg ggt aag gat aat	681
Val Met Leu Glu Asn Tyr Arg Asn Leu Val Phe Leu Gly Lys Asp Asn	
36 41 46 51	
ttt gct cta gaa gtt aag atc tgc cct cgt gta ttt ttg tat ttt ctc	729
Phe Ala Leu Glu Val Lys Ile Cys Pro Arg Val Phe Leu Tyr Phe Leu	
52 57 62 67	
tgt tgt ctt tct tgg gag ccc ttc cat tat ttg act gag act gaa gcc	777
Cys Cys Leu Ser Trp Glu Pro Phe His Tyr Leu Thr Glu Thr Glu Ala	
68 73 78 83	
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Leu Leu Thr His Lys *	
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<210> 1089

<211> 765

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<220>

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<222> (65)..(595)

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 Met Arg Lys His Leu Ser Trp Trp Trp Leu Ala Thr Val Cys Met  
 1 5 10

ctg ctc ttc agc cac ctc tct gcg gtc cag acg agg ggc atc aag cac 157  
 Leu Leu Phe Ser His Leu Ser Ala Val Gln Thr Arg Gly Ile Lys His  
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Pro Asp Pro Gly Ala Val Ala Ala Ala Ala Ile Leu Arg Ala Ile Leu	
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gag gtc ttg cag agc tag ggtgtg tgactgcctc ccttggcctc agctccttc	1965
Glu Val Leu Gln Ser *	
571 576	
actgctgtgc tgagggtggcc tttgtcactt ccttctgcct tccaaccctc accttcccc	2025
ggcctggccc cattggccca ccttctaagt tgagcaggaa atcctccacc aagcttccag	2085
aactacagac agcaccacaga gtgagctgga gtgggtcccc atgcctctcc agcatgcct	2145
ttccctttgc aggagggtgg agtccttggg tcatgcctc cctgccagc tctgggcttc	2205
agagataagg cattttcctt gtgcagcctt tacctggcaa tcctaatttg gttttaagac	2265
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ctataataca tggaaaaaaa aaaaa	2350

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 atg tgg ttc atg tac ctg ctg agc tgg ctg tcg ctc ttc atc cag gtg 165  
 Met Trp Phe Met Tyr Leu Leu Ser Trp Leu Ser Leu Phe Ile Gln Val  
 1 5 10 15  
  
 gcc ttc atc acg ctg gct gtc gcg gct gga ctc tat tac ctg gca gaa 213  
 Ala Phe Ile Thr Leu Ala Val Ala Ala Gly Leu Tyr Tyr Leu Ala Glu  
 17 22 27 32  
  
 ctg ata gaa gaa tac aca gtg gcc acc agc agg atc ata aaa tac atg 261  
 Leu Ile Glu Glu Tyr Thr Val Ala Thr Ser Arg Ile Ile Lys Tyr Met  
 33 38 43 48  
  
 atc tgg ttc tcc acc gct gta ctg att ggc ctc tac gtc ttt gag cgc 309  
 Ile Trp Phe Ser Thr Ala Val Leu Ile Gly Leu Tyr Val Phe Glu Arg  
 49 54 59 64  
  
 ttc ccc acc agc atg att gga gtg ggc cta ttc acc aac ctc gtc tac 357  
 Phe Pro Thr Ser Met Ile Gly Val Gly Leu Phe Thr Asn Leu Val Tyr  
 65 70 75 80  
  
 ttt ggc ctc ctc cag acc ttc ccc ttc atc atg ctg acc tcg cct aac 405  
 Phe Gly Leu Leu Gln Thr Phe Pro Phe Ile Met Leu Thr Ser Pro Asn  
 81 86 91 96  
  
 ttc atc ctg tcg tgt gga cta gtg gtg gtg aat cat tac cta gca ttt 453  
 Phe Ile Leu Ser Cys Gly Leu Val Val Val Asn His Tyr Leu Ala Phe  
 97 102 107 112  
  
 cag ttt ttt gca gaa gaa tat tat ccc ttc tca gag gtc ctg gcc tat 501  
 Gln Phe Phe Ala Glu Glu Tyr Tyr Pro Phe Ser Glu Val Leu Ala Tyr  
 113 118 123 128  
  
 ttc act ttc tgc ctg tgg ata att ccg ttt gcg ttt ttt gtg tca ctt 549  
 Phe Thr Phe Cys Leu Trp Ile Ile Pro Phe Ala Phe Phe Val Ser Leu  
 129 134 139 144  
  
 tcg gcc ggg gag aac gtc ctg ccc tct acc atg cag cca gga gat gat 597  
 Ser Ala Gly Glu Asn Val Leu Pro Ser Thr Met Gln Pro Gly Asp Asp  
 145 150 155 160

gtc gtc tcc aat tat ttc acc aaa ggc aag cgg ggc aaa cgc tta ggg	645
Val Val Ser Asn Tyr Phe Thr Lys Gly Lys Arg Gly Lys Arg Leu Gly	
161 166 171 176	
atc ctg gtt gtc ttc tcc ttc atc aaa gag gcc att cta ccc agt cgt	693
Ile Leu Val Val Phe Ser Phe Ile Lys Glu Ala Ile Leu Pro Ser Arg	
177 182 187 192	
cag aag ata tac tga ccccatgca ggcaggatgt ggggggcaag atcaggagag	748
Gln Lys Ile Tyr *	
193	
tcaggcccct gggcctctat gccagggtggg gaccagaagt cgggaaggca cctaccacct	808
gccctggctt tctccccctc aactctggag ccccatcccc accctccttg gggggctcag	868
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agagcctgtt tagccaggag gccgaggtcc ctgagtcctc ccctgtccct tccaagggtgg	988
gtcaggaggt tctggccccg ctggggcagg cagggcaggg tctgtgaagc ttaagagcag	1048
atggtgacaa gttctctggg caggtggcca tggggagggg ccatggcttg gcatgtccaa	1108
cagaaatagt ttttgctgtt gaacggtgat ttctgtccaa gtgcagattt ccgtttgaat	1168
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Met Glu Leu Gly Gly His Trp Asp Met Asn Ser Ala Pro	
1 5 10	
agg ctg gtc tcg gag acc gca gag cgg aaa cag gag cag aag aca gga	157
Arg Leu Val Ser Glu Thr Ala Glu Arg Lys Gln Glu Gln Lys Thr Gly	
14 19 24 29	
acc gag gcg gag gct gcc gac tcc ggt gcc gtc gga gcc cgc cgc ttc	205
Thr Glu Ala Glu Ala Ala Asp Ser Gly Ala Val Gly Ala Arg Arg Phe	
30 35 40 45	
ctg ctc tgt ctc tac ttg ggg ggc ttc ttg gat ttg ttt ggt gtc agc	253
Leu Leu Cys Leu Tyr Leu Gly Gly Phe Leu Asp Leu Phe Gly Val Ser	

46	51	56	61	
atg gtt gtg cct tta ttg agc ctt cat gtc aag tcc ctt gga gca agt				301
Met Val Val Pro Leu Leu Ser Leu His Val Lys Ser Leu Gly Ala Ser				
62	67	72	77	
cca aca gtt gct gga ata gta ggc tcc tcc tat ggc att ttg caa ctc				349
Pro Thr Val Ala Gly Ile Val Gly Ser Ser Tyr Gly Ile Leu Gln Leu				
78	83	88	93	
ttt tct agc aca ttg gtg ggc tgc tgg agc gat gta gtg gga aga cgg				397
Phe Ser Ser Thr Leu Val Gly Cys Trp Ser Asp Val Val Gly Arg Arg				
94	99	104	109	
tct tcc ttg ctg gca tgc att cta ctc agt gct ctg ggc tat ctc ctt				445
Ser Ser Leu Leu Ala Cys Ile Leu Leu Ser Ala Leu Gly Tyr Leu Leu				
110	115	120	125	
ctc gga gca gcc acc aat gtg ttt ctg ttt gtc ctg gct aga gtc ccg				493
Leu Gly Ala Ala Thr Asn Val Phe Leu Phe Val Leu Ala Arg Val Pro				
126	131	136	141	
gca ggt att ttt aaa cac act ctc tcc atc tca agg gct cta ctt tct				541
Ala Gly Ile Phe Lys His Thr Leu Ser Ile Ser Arg Ala Leu Leu Ser				
142	147	152	157	
gat gtg gtt cca gag aag gaa cgg ccg ctt gta atc gga cac ttc aac				589
Asp Val Val Pro Glu Lys Glu Arg Pro Leu Val Ile Gly His Phe Asn				
158	163	168	173	
aca gcc tcc ggt gtg ggc ttc atc ttg ggc ccc gtg gtc ggt ggc tat				637
Thr Ala Ser Gly Val Gly Phe Ile Leu Gly Pro Val Val Gly Gly Tyr				
174	179	184	189	
ctc act gaa tta gag gat ggg ttt tat ctc aca gcc ttc atc tgc ttt				685
Leu Thr Glu Leu Glu Asp Gly Phe Tyr Leu Thr Ala Phe Ile Cys Phe				
190	195	200	205	
ttg gtc ttc att ctc aat gct ggt ctc gtt tgg ttc ttt cca tgg agg				733
Leu Val Phe Ile Leu Asn Ala Gly Leu Val Trp Phe Phe Pro Trp Arg				
206	211	216	221	
gaa gca aaa ccg ggc agt aca gag aag ggc ctg cca ttg cga aag acc				781
Glu Ala Lys Pro Gly Ser Thr Glu Lys Gly Leu Pro Leu Arg Lys Thr				
222	227	232	237	
cat gtg ctg ttg gga agg agc cat gac aca gtg cag gag gca gcc acc				829
His Val Leu Leu Gly Arg Ser His Asp Thr Val Gln Glu Ala Ala Thr				
238	243	248	253	
agc cgc aga gcc agg gcc agc aag aag act gcc cag ccc tgg gtc gaa				877
Ser Arg Arg Ala Arg Ala Ser Lys Lys Thr Ala Gln Pro Trp Val Glu				
254	259	264	269	
gta gtg ttg gcc ttg cgg aac atg aag aac ctg ctg ttt tcc gaa atg				925
Val Val Leu Ala Leu Arg Asn Met Lys Asn Leu Leu Phe Ser Glu Met				
270	275	280	285	



tgg gac ata ttt ctg gtg cgc ttg ctg atg gcc atg gca gtc atg ctg	973
Trp Asp Ile Phe Leu Val Arg Leu Leu Met Ala Met Ala Val Met Leu	
286 291 296 301	
tac tac agt aac ttt gtc ctg gcc ctg gag gag cgc ttt ggg gtg cgg	1021
Tyr Tyr Ser Asn Phe Val Leu Ala Leu Glu Glu Arg Phe Gly Val Arg	
302 307 312 317	
ccc aag gtg aca ggc tac ctc atc agt tac agc agc atg ctg ggg gcc	1069
Pro Lys Val Thr Gly Tyr Leu Ile Ser Tyr Ser Ser Met Leu Gly Ala	
318 323 328 333	
gtg gcc ggc ctt gcc ctg ggg cca atc cta cgg ctg <sup>3</sup> tac aag cac aac	1117
Val Ala Gly Leu Ala Leu Gly Pro Ile Leu Arg Leu Tyr Lys His Asn	
334 339 344 349	
tcg cag gca ctg ctg ctg cat tcc agc ata ctc acc tgc aca ctg ctg	1165
Ser Gln Ala Leu Leu Leu His Ser Ser Ile Leu Thr Cys Thr Leu Leu	
350 355 360 365	
ctg ctc tac tcc ttg gcc ccc acc atg ggt gca gtt gtc ctc tcc tcc	1213
Leu Leu Tyr Ser Leu Ala Pro Thr Met Gly Ala Val Val Leu Ser Ser	
366 371 376 381	
act ctc ctg tcc ttc tcc act gcc att ggc agg acg tgc atc acg gac	1261
Thr Leu Leu Ser Phe Ser Thr Ala Ile Gly Arg Thr Cys Ile Thr Asp	
382 387 392 397	
ctc cag ctg act gtg ggc ggg gcc cag gcc agc ggc acc ctt att ggc	1309
Leu Gln Leu Thr Val Gly Gly Ala Gln Ala Ser Gly Thr Leu Ile Gly	
398 403 408 413	
gtg ggg cag tct gtg act gca gtg ggc cgc atc atc gcc cct ctc ctc	1357
Val Gly Gln Ser Val Thr Ala Val Gly Arg Ile Ile Ala Pro Leu Leu	
414 419 424 429	
tcg ggg gtt gcc cag gag gtc agc cct tgc ggc ccc ccc agc ctg ggc	1405
Ser Gly Val Ala Gln Glu Val Ser Pro Cys Gly Pro Pro Ser Leu Gly	
430 435 440 445	
gct gtg tta gcc tta gtg gcc att ttc ata atg tct cta aac aag cga	1453
Ala Val Leu Ala Leu Val Ala Ile Phe Ile Met Ser Leu Asn Lys Arg	
446 451 456 461	
cac tct agt ggt gat ggg aat agt aaa tta aaa agt gag tag atggatt	1502
His Ser Ser Gly Asp Gly Asn Ser Lys Leu Lys Ser Glu *	
462 467 472	
tggacaacat aaagcaacaa aatttgagat ggttgaatga gggccggagg ccatgatgaa	1562
aagggcactt tggaaagggt tgggggtggaa gggaaatatt tccgggtggg tgtgagctgt	1622
tgggcttcca ggtcagctct tggccatgca gccatgcctg caggatgatc agaagtcacg	1682
gcacctcatg ggaagggttaa gactggagca aagcttttcc aagtgtgacc cagagaccag	1742

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ccattttaat aagataccta gctgattttt tgcacagcaa actttgaaaa cccctgggtct 1862  
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ttgaaaaaaaa aaaaa 1937

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tgaaaaag atg gat act atg atg ctg aat gtg cgg aat ctg ttt gag cag 170  
Met Asp Thr Met Met Leu Asn Val Arg Asn Leu Phe Glu Gln  
1 5 10  
ctt gtg cgc cgg gtg gag att ctc agt gaa gga aat gaa gtc caa ttt 218  
Leu Val Arg Arg Val Glu Ile Leu Ser Glu Gly Asn Glu Val Gln Phe  
15 20 25 30  
atc cag ttg gcg aag gac ttt gag gat ttc cgt aaa aag tgg cag agg 266  
Ile Gln Leu Ala Lys Asp Phe Glu Asp Phe Arg Lys Lys Trp Gln Arg  
31 36 41 46  
act gac cat gag ctg ggg aaa tac aag gat ctt ttg atg aaa gca gag 314  
Thr Asp His Glu Leu Gly Lys Tyr Lys Asp Leu Leu Met Lys Ala Glu  
47 52 57 62  
act gag cga agt gct ctg gat gtt aag ctg aag cat gca cgt aat cag 362  
Thr Glu Arg Ser Ala Leu Asp Val Lys Leu Lys His Ala Arg Asn Gln  
63 68 73 78  
gtg gat gta gag atc aaa cgg aga cag aga gct gag gct gac tgc gaa 410  
Val Asp Val Glu Ile Lys Arg Arg Gln Arg Ala Glu Ala Asp Cys Glu  
79 84 89 94  
aag ctg gaa cga cag att cag ctg att cga gag atg ctc atg tgt gac 458  
Lys Leu Glu Arg Gln Ile Gln Leu Ile Arg Glu Met Leu Met Cys Asp  
95 100 105 110  
aca tct ggc agc att caa cta agc gag gag caa aaa tca gct ctg gct 506  
Thr Ser Gly Ser Ile Gln Leu Ser Glu Glu Gln Lys Ser Ala Leu Ala  
111 116 121 126

ttt ctc aac aga ggc caa cca tcc agc agc aat gct ggg aac aaa aga	554
Phe Leu Asn Arg Gly Gln Pro Ser Ser Ser Asn Ala Gly Asn Lys Arg	
127 132 137 142	
cta tca acc att gat gaa tct ggt tcc att tta tca gat atc agc ttt	602
Leu Ser Thr Ile Asp Glu Ser Gly Ser Ile Leu Ser Asp Ile Ser Phe	
143 148 153 158	
gac aag act gat gaa tca ctg gat tgg gac tct tct ttg gtg aag act	650
Asp Lys Thr Asp Glu Ser Leu Asp Trp Asp Ser Ser Leu Val Lys Thr	
159 164 169 174	
ttc aaa ctg aag aag aga gaa aag agg cgc tct act agc cga cag ttt	698
Phe Lys Leu Lys Lys Arg Glu Lys Arg Arg Ser Thr Ser Arg Gln Phe	
175 180 185 190	
gtt gat ggt ccc cct gga cct gta aag aaa act cgt tcc att ggc tct	746
Val Asp Gly Pro Pro Gly Pro Val Lys Lys Thr Arg Ser Ile Gly Ser	
191 196 201 206	
gca gta gac cag ggg aat gaa tcc ata gtt gca aaa act aca gtg act	794
Ala Val Asp Gln Gly Asn Glu Ser Ile Val Ala Lys Thr Thr Val Thr	
207 212 217 222	
gtt ccc aat gat ggc ggg ccc atc gaa gct gtg tcc act att gag act	842
Val Pro Asn Asp Gly Gly Pro Ile Glu Ala Val Ser Thr Ile Glu Thr	
223 228 233 238	
gtg cca tat tgg acc agg agc cga agg aaa aca ggt act tta caa cct	890
Val Pro Tyr Trp Thr Arg Ser Arg Arg Lys Thr Gly Thr Leu Gln Pro	
239 244 249 254	
tgg aac agt gac tcc acc ctg aac agc agg cag ctg gag cca aga act	938
Trp Asn Ser Asp Ser Thr Leu Asn Ser Arg Gln Leu Glu Pro Arg Thr	
255 260 265 270	
gag aca gac agt gtg ggc acg cca cag agt aat gga ggg atg cgc ctg	986
Glu Thr Asp Ser Val Thr Gly Thr Pro Gln Ser Asn Gly Gly Met Arg Leu	
271 276 281 286	
cat gac ttt gtt tct aag acg gtt att aaa cct gaa tcc tgt gtt cca	1034
His Asp Phe Val Ser Lys Thr Val Ile Lys Pro Glu Ser Cys Val Pro	
287 292 297 302	
tgt gga aag cgg ata aaa ttt ggc aaa tta tct ctg aag tgt cga gac	1082
Cys Gly Lys Arg Ile Lys Phe Gly Lys Leu Ser Leu Lys Cys Arg Asp	
303 308 313 318	
tgt cgt gtg gtc tct cat cca gaa tgt cgg gac cgc tgt ccc ctt ccc	1130
Cys Arg Val Val Ser His Pro Glu Cys Arg Asp Arg Cys Pro Leu Pro	
319 324 329 334	
tgc att cct acc ctg ata gga aca cct gtc aag att gga gag gga atg	1178
Cys Ile Pro Thr Leu Ile Gly Thr Pro Val Lys Ile Gly Glu Gly Met	
335 340 345 350	
ctg gca gac ttt gtg tcc cag act tct cca atg atc ccc tcc att gtt	1226

Leu Ala Asp Phe Val Ser Gln Thr Ser Pro Met Ile Pro Ser Ile Val	
351 356 361 366	
gtg cat tgt gta aat gag att gag caa aga ggt ctg act gag aca ggc	1274
Val His Cys Val Asn Glu Ile Glu Gln Arg Gly Leu Thr Glu Thr Gly	
367 372 377 382	
ctg tat agg atc tct ggc tgt gac cgc aca gta aaa gag ctg aaa gag	1322
Leu Tyr Arg Ile Ser Gly Cys Asp Arg Thr Val Lys Glu Leu Lys Glu	
383 388 393 398	
aaa ttc ctc aga gtg aaa act gta ccc ctc ctc agc aaa gtg gat gat	1370
Lys Phe Leu Arg Val Lys Thr Val Pro Leu Leu Ser Lys Val Asp Asp	
399 404 409 414	
atc cat gct atc tgt agc ctt cta aaa gac ttt ctt cga aac ctc aaa	1418
Ile His Ala Ile Cys Ser Leu Leu Lys Asp Phe Leu Arg Asn Leu Lys	
415 420 425 430	
gaa cct ctt ctg acc ttt cgc ctt aac aga gcc ttt atg gaa gca gca	1466
Glu Pro Leu Leu Thr Phe Arg Leu Asn Arg Ala Phe Met Glu Ala Ala	
431 436 441 446	
gaa atc aca gat gaa gac aac agc ata gct gcc atg tac caa gct gtt	1514
Glu Ile Thr Asp Glu Asp Asn Ser Ile Ala Ala Met Tyr Gln Ala Val	
447 452 457 462	
ggg gaa ctg ccc cag gcc aac agg gac aca tta gct ttc ctc atg att	1562
Gly Glu Leu Pro Gln Ala Asn Arg Asp Thr Leu Ala Phe Leu Met Ile	
463 468 473 478	
cac ttg cag aga gtg gct cag agt cca cat act aaa atg gat gtt gcc	1610
His Leu Gln Arg Val Ala Gln Ser Pro His Thr Lys Met Asp Val Ala	
479 484 489 494	
aat ctg gct aaa gtc ttt ggc cct aca ata gtg gcc cat gct gtg ccc	1658
Asn Leu Ala Lys Val Phe Gly Pro Thr Ile Val Ala His Ala Val Pro	
495 500 505 510	
aat cca gac cca gtg aca atg tta cag gac atc aag cgt caa ccc aag	1706
Asn Pro Asp Pro Val Thr Met Leu Gln Asp Ile Lys Arg Gln Pro Lys	
511 516 521 526	
gtg gtt gag cgc ctg ctt tcc ttg cct ctg gag tat tgg agt cag ttc	1754
Val Val Glu Arg Leu Leu Ser Leu Pro Leu Glu Tyr Trp Ser Gln Phe	
527 532 537 542	
atg atg gtg gag caa gag aac att gac ccc cta cat gtc att gaa aac	1802
Met Met Val Glu Gln Glu Asn Ile Asp Pro Leu His Val Ile Glu Asn	
543 548 553 558	
tca aat gcc ttt tca aca cca cag aca cca gat att aaa gtg agt tta	1850
Ser Asn Ala Phe Ser Thr Pro Gln Thr Pro Asp Ile Lys Val Ser Leu	
559 564 569 574	
ctg gga cct gtg acc act cct gaa cat cag ctt ctc aag act cct tca	1898
Leu Gly Pro Val Thr Thr Pro Glu His Gln Leu Leu Lys Thr Pro Ser	

575	580	585	590	
tct ggt tcc ctg tca cag aga gtc cgt tcc acc ctc acc aag aac act				1946
Ser Gly Ser Leu Ser Gln Arg Val Arg Ser Thr Leu Thr Lys Asn Thr				
591	596	601	606	
cct aga ttt ggg agc aaa agc aag tct gcc act aac cta gga cga caa				1994
Pro Arg Phe Gly Ser Lys Ser Lys Ser Ala Thr Asn Leu Gly Arg Gln				
607	612	617	622	
ggc aac ttt ttt gct tct cca atg ctc aag tga agtcacat ctgcctgtta				2045
Gly Asn Phe Phe Ala Ser Pro Met Leu Lys *				
623	628	633		
cttcccagca ttgactgact ataagaaagg acacatctgt actctgctct gcagcctcct				2105
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caatgacaga aacctacct atctgataag attagcttgt ctcagggtgg gaagtgggag				2465
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gaaatttttc ccatggaaca tagccacatc tagatagatg tgagcttttt cttctgttaa				3005
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<212> DNA  
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<400> 1098

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tggtcgcgtg gctgcgtggc tcggttcttg tgagcgaagc tttgtccggt tcggca 176

atg gac gga atc gtc act gag gtt gca gtt ggc gtg aag aga gga tct 224

Met Asp Gly Ile Val Thr Glu Val Ala Val Gly Val Lys Arg Gly Ser

1 5 10 15

gac gaa cta ctc tca ggc agt gtt ctc agt agt ccg aac tct aat atg 272

Asp Glu Leu Leu Ser Gly Ser Val Leu Ser Ser Pro Asn Ser Asn Met

17 22 27 32

agc agc atg gta gtt aca gcc aat ggt aat gat agt aaa aaa ttt aaa 320

Ser Ser Met Val Val Thr Ala Asn Gly Asn Asp Ser Lys Lys Phe Lys

33 38 43 48

gga gaa gat aaa atg gat ggt gct cct tct cgt gta ctt cat att cga 368

Gly Glu Asp Lys Met Asp Gly Ala Pro Ser Arg Val Leu His Ile Arg

49 54 59 64

aaa tta cct ggg gaa gta aca gaa act gaa gtt att gct tta ggc tta 416

Lys Leu Pro Gly Glu Val Thr Glu Thr Glu Val Ile Ala Leu Gly Leu

65 70 75 80

cct ttt ggt aag gtg acc aac atc ctt atg ctg aaa gga aaa aat cag 464

Pro Phe Gly Lys Val Thr Asn Ile Leu Met Leu Lys Gly Lys Asn Gln

81 86 91 96

gca ttt ttg gaa cta gca acc gag gaa gca gct att act atg gtt aat 512

Ala Phe Leu Glu Leu Ala Thr Glu Glu Ala Ala Ile Thr Met Val Asn

97 102 107 112

tac tat tct gct gtg aca cct cat ctt cgt aac caa cca ata tat atc 560

Tyr Tyr Ser Ala Val Thr Pro His Leu Arg Asn Gln Pro Ile Tyr Ile

113 118 123 128

cag tac tcg aat cac aaa gaa cta aag aca gat aat aca tta aac caa 608

Gln Tyr Ser Asn His Lys Glu Leu Lys Thr Asp Asn Thr Leu Asn Gln

129 134 139 144

cgt gct cag gca gtt ctt caa gct gtg aca gct gtc cag aca gca aat 656

Arg Ala Gln Ala Val Leu Gln Ala Val Thr Ala Val Gln Thr Ala Asn

145 150 155 160

act cct ctt agt ggc acc aca gtt agc gag agt gca gtg act cca gcc 704

Thr Pro Leu Ser Gly Thr Thr Val Ser Glu Ser Ala Val Thr Pro Ala

161 166 171 176

cag agt cca gta ctt aga ata att att gac aac atg tac tac cct gta	752
Gln Ser Pro Val Leu Arg Ile Ile Ile Asp Asn Met Tyr Tyr Pro Val	
177 182 187 192	
aca ctt gat gtt ctt cac caa ata ttt tct aag ttt ggt gct gta ttg	800
Thr Leu Asp Val Leu His Gln Ile Phe Ser Lys Phe Gly Ala Val Leu	
193 198 203 208	
aag ata atc aca ttt aca aaa aat aac cag ttt caa gct ttg ctc cag	848
Lys Ile Ile Thr Phe Thr Lys Asn Asn Gln Phe Gln Ala Leu Leu Gln	
209 214 219 224	
tat ggt gat cca gta aat gct caa caa gca aaa cta gcc cta gat ggt	896
Tyr Gly Asp Pro Val Asn Ala Gln Gln Ala Lys Leu Ala Leu Asp Gly	
225 230 235 240	
cag aat att tat aat gcc tgc tgt acc cta agg att gat ttt tcc aaa	944
Gln Asn Ile Tyr Asn Ala Cys Cys Thr Leu Arg Ile Asp Phe Ser Lys	
241 246 251 256	
ctt gtg aat ttg aat gta aaa tac aac aat gat aaa agt agg gat tat	992
Leu Val Asn Leu Asn Val Lys Tyr Asn Asn Asp Lys Ser Arg Asp Tyr	
257 262 267 272	
act cga cct gat ctt cca tct ggg gat gga caa cct gca ttg gac cca	1040
Thr Arg Pro Asp Leu Pro Ser Gly Asp Gly Gln Pro Ala Leu Asp Pro	
273 278 283 288	
gct att gct gca gca ttt gcc aag gag aca tcc ctc tta gct gtt cca	1088
Ala Ile Ala Ala Ala Phe Ala Lys Glu Thr Ser Leu Leu Ala Val Pro	
289 294 299 304	
gga gct ctg agt cct ttg gcc att cca aat gct gct gca gca gct gct	1136
Gly Ala Leu Ser Pro Leu Ala Ile Pro Asn Ala Ala Ala Ala Ala	
305 310 315 320	
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Ala Ala Ala Ala Gly Arg Val Gly Met Pro Gly Val Ser Ala Gly Gly	
321 326 331 336	
aat aca gtc ctg ttg gtt agc aat tta aat gaa gag atg gtt acg ccc	1232
Asn Thr Val Leu Leu Val Ser Asn Leu Asn Glu Glu Met Val Thr Pro	
337 342 347 352	
caa agt ctg ttt acc ctc ttc ggt gtt tat gga gat gtg cag cgt gtg	1280
Gln Ser Leu Phe Thr Leu Phe Gly Val Tyr Gly Asp Val Gln Arg Val	
353 358 363 368	
aag att tta tac aat aag aaa gac agc gct cta ata cag atg gct gat	1328
Lys Ile Leu Tyr Asn Lys Lys Asp Ser Ala Leu Ile Gln Met Ala Asp	
369 374 379 384	
gga aac caa tca caa ctt gcc atg aat cat ctt aat gga cag aaa atg	1376
Gly Asn Gln Ser Gln Leu Ala Met Asn His Leu Asn Gly Gln Lys Met	
385 390 395 400	
tat gga aaa att att cgt gtt act ctg tct aaa cat cag act gta cag	1424

Tyr Gly Lys Ile Ile Arg Val Thr Leu Ser Lys His Gln Thr Val Gln	
401 406 411 416	
cta cct cga gag gga ctt gat gat caa ggg cta aca aaa gat ttt ggt	1472
Leu Pro Arg Glu Gly Leu Asp Asp Gln Gly Leu Thr Lys Asp Phe Gly	
417 422 427 432	
aat tcc cca ttg cat cgt ttt aag aaa cct gga tcc aaa aat ttt caa	1520
Asn Ser Pro Leu His Arg Phe Lys Lys Pro Gly Ser Lys Asn Phe Gln	
433 438 443 448	
aac att ttt cct cct tct gcc acc ctt cac cta tct aat atc cct cca	1568
Asn Ile Phe Pro Pro Ser Ala Thr Leu His Leu Ser Asn Ile Pro Pro	
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Ser Val Ala Glu Glu Asp Leu Arg Thr Leu Phe Ala Asn Thr Gly Gly	
465 470 475 480	
act gtg aaa gca ttt aag ttt ttt caa aga gat cac aaa atg gct ctt	1664
Thr Val Lys Ala Phe Lys Phe Phe Gln Arg Asp His Lys Met Ala Leu	
481 486 491 496	
ctt cag atg gca aca gtg gaa gaa gct att cag gcc ttg att gat ctt	1712
Leu Gln Met Ala Thr Val Glu Glu Ala Ile Gln Ala Leu Ile Asp Leu	
497 502 507 512	
cat aat tat aac ctt gga gaa aac cat cat ctg aga gtg tct ttc tcc	1760
His Asn Tyr Asn Leu Gly Glu Asn His His Leu Arg Val Ser Phe Ser	
513 518 523 528	
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Lys Ser Thr Ile *	
529	
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ccattttgtc tgtttaaaat ttcagtttaa ttttgctttt tttttttttt ttttctctt	2055
caacttagtt gacatacgtg ccttaaaaag gaaaactagt gttgctattg tgcatttacg	2115
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gcaggggttt attaaaaaag gttaagtttt tttttaccac tgtttaggga ccttaatttt	2235
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Glu Val Glu Val Ile Ser Arg His Leu Pro Ala Leu Gly Leu Arg Asn		
6 11 16 21		
cgg ggc aag ggc gtc cga gcc gtg ttg agc ctc tgt cag cag act tcc		150
Arg Gly Lys Gly Val Arg Ala Val Leu Ser Leu Cys Gln Gln Thr Ser		
22 27 32 37		
agg agt cag ccg ccg gtc cga gcc ttc ctg ctc atc tcc acc ctg aag		198
Arg Ser Gln Pro Pro Val Arg Ala Phe Leu Leu Ile Ser Thr Leu Lys		
38 43 48 53		
gac aag cgc ggg acc cgc tat gag cta agg gag aac att gag caa ttc		246
Asp Lys Arg Gly Thr Arg Tyr Glu Leu Arg Glu Asn Ile Glu Gln Phe		
54 59 64 69		
ttc acc aaa ttt gta gat gag ggg aaa gcc act gtt cgg tta aag gag		294
Phe Thr Lys Phe Val Asp Glu Gly Lys Ala Thr Val Arg Leu Lys Glu		
70 75 80 85		
cct cct gtg gat atc tgt cta agt aag gcc att tcc agc agt tta aaa		342
Pro Pro Val Asp Ile Cys Leu Ser Lys Ala Ile Ser Ser Ser Leu Lys		
86 91 96 101		
ggt ttc ctt tca gct atg aga ctg gct cat aga ggc tgt aat gtt gat		390
Gly Phe Leu Ser Ala Met Arg Leu Ala His Arg Gly Cys Asn Val Asp		
102 107 112 117		
aca cca gtt tca acg ctc aca cca gtg aag act tca gaa ttt gaa aac		438
Thr Pro Val Ser Thr Leu Thr Pro Val Lys Thr Ser Glu Phe Glu Asn		
118 123 128 133		
ttt aaa act aaa atg gtt atc aca tcc aaa aaa gac tat cct cta agt		486
Phe Lys Thr Lys Met Val Ile Thr Ser Lys Lys Asp Tyr Pro Leu Ser		
134 139 144 149		
aag aat ttt cca tat tcc ttg gaa cat ctt cag act tct tac tgt ggg		534
Lys Asn Phe Pro Tyr Ser Leu Glu His Leu Gln Thr Ser Tyr Cys Gly		
150 155 160 165		
ctt gtc cga gtt gat atg cgt atg ctt tgc tta aaa agc ctt agg aaa		582
Leu Val Arg Val Asp Met Arg Met Leu Cys Leu Lys Ser Leu Arg Lys		
166 171 176 181		

tta gac ttg agt cac aac cat ata aaa aag ctt cca gct aca att gga	630
Leu Asp Leu Ser His Asn His Ile Lys Lys Leu Pro Ala Thr Ile Gly	
182 187 192 197	
gac ctc ata cac ctt caa gaa ctt aac ctg aat gac aat cac ttg gag	678
Asp Leu Ile His Leu Gln Glu Leu Asn Leu Asn Asp Asn His Leu Glu	
198 203 208 213	
tca ttt agt gta gcc ttg tgt cat tct aca ctc cag aag tca ctt cgg	726
Ser Phe Ser Val Ala Leu Cys His Ser Thr Leu Gln Lys Ser Leu Arg	
214 219 224 229	
agt ttg gac ctc agc aag aac aaa atc aag gca ctc cct gtg cag ttt	774
Ser Leu Asp Leu Ser Lys Asn Lys Ile Lys Ala Leu Pro Val Gln Phe	
230 235 240 245	
tgc cag ctc cag gaa ctt aag aat tta aaa ctt gac gat aat gaa ttg	822
Cys Gln Leu Gln Glu Leu Lys Asn Leu Lys Leu Asp Asp Asn Glu Leu	
246 251 256 261	
att caa ttt cct tgc aag ata gga caa cta ata aac ctt cgc ttt ttg	870
Ile Gln Phe Pro Cys Lys Ile Gly Gln Leu Ile Asn Leu Arg Phe Leu	
262 267 272 277	
tca gca gct cga aat aag ctt cca ttt ttg cct agt gaa ttt aga aat	918
Ser Ala Ala Arg Asn Lys Leu Pro Phe Leu Pro Ser Glu Phe Arg Asn	
278 283 288 293	
tta tcc ctt gaa tac ttg gat ctt ttt gga aat act ttt gaa caa cca	966
Leu Ser Leu Glu Tyr Leu Asp Leu Phe Gly Asn Thr Phe Glu Gln Pro	
294 299 304 309	
aaa gtc ctt cca gta ata aag ctg caa gca cca tta act tta ttg gaa	1014
Lys Val Leu Pro Val Ile Lys Leu Gln Ala Pro Leu Thr Leu Leu Glu	
310 315 320 325	
tct tct gca cga acc ata tta cat aat agg att cca tat ggc tct cat	1062
Ser Ser Ala Arg Thr Ile Leu His Asn Arg Ile Pro Tyr Gly Ser His	
326 331 336 341	
atc att cca ttc cat ctc tgc caa gat ttg gat acc gca aaa att tgt	1110
Ile Ile Pro Phe His Leu Cys Gln Asp Leu Asp Thr Ala Lys Ile Cys	
342 347 352 357	
gtt tgt gga aga ttc tgt ctg aac tct ttc att caa gga act act acc	1158
Val Cys Gly Arg Phe Cys Leu Asn Ser Phe Ile Gln Gly Thr Thr Thr	
358 363 368 373	
atg aat ctg cat tct gtt gcc cac act gtg gtc tta gta gat aat ttg	1206
Met Asn Leu His Ser Val Ala His Thr Val Val Leu Val Asp Asn Leu	
374 379 384 389	
ggg ggt act gaa gca cct att atc tct tat ttc tgt tct cta ggc tgt	1254
Gly Gly Thr Glu Ala Pro Ile Ile Ser Tyr Phe Cys Ser Leu Gly Cys	
390 395 400 405	
tat gtt aat tcc tct gat atg tta aag taa t gggtgagacc agaaaaagaa	1305

Tyr Val Asn Ser Ser Asp Met Leu Lys \*  
406 411

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ctccaaaact tttattaaaa ccaatttttag ttttaaaaaa aaaaaa 1471

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<222> (117)..(1229)

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atg gac atg gtg cac ctg gtc cat gcc aag aat gcc cag gct ctg gcc 164  
Met Asp Met Val His Leu Val His Ala Lys Asn Ala Gln Ala Leu Ala  
1 5 10 15  
  
agc gac cac gac tac agg aca cag tat cac aag ttc aca gca ctg ccc 212  
Ser Asp His Asp Tyr Arg Thr Gln Tyr His Lys Phe Thr Ala Leu Pro  
17 22 27 32  
  
gag gac ctg aag atg gcc tgg gcc aag aaa gcc cat gcc ctg cag agt 260  
Glu Asp Leu Lys Met Ala Trp Ala Lys Lys Ala His Ala Leu Gln Ser  
33 38 43 48  
  
gag ttg cgc tac aag tca gac ctg atc ggc atg aag ggc ata gga tgg 308  
Glu Leu Arg Tyr Lys Ser Asp Leu Ile Gly Met Lys Gly Ile Gly Trp  
49 54 59 64  
  
ctg gcg ctg aga tcc cca cag atg gag agt gca aag aag gct gga gaa 356  
Leu Ala Leu Arg Ser Pro Gln Met Glu Ser Ala Lys Lys Ala Gly Glu  
65 70 75 80  
  
ctc atc agc gag acc aag tac cgt aaa aaa cca gac agt atc aag ttc 404  
Leu Ile Ser Glu Thr Lys Tyr Arg Lys Lys Pro Asp Ser Ile Lys Phe  
81 86 91 96  
  
acc aca gtg gtt gac tcc cca gac ctg gtt cat gcc aag aac agc tat 452  
Thr Thr Val Val Asp Ser Pro Asp Leu Val His Ala Lys Asn Ser Tyr  
97 102 107 112  
  
atg cac tgc aat gag cgc atg tat aga tct gga gat gca gaa tcc ctg 500  
Met His Cys Asn Glu Arg Met Tyr Arg Ser Gly Asp Ala Glu Ser Leu  
113 118 123 128

cac aga tac acc ctg atc ccc gac cat ccc gat ttc acc cga gct cgc	548
His Arg Tyr Thr Leu Ile Pro Asp His Pro Asp Phe Thr Arg Ala Arg	
129 134 139 144	
ctc aat gcg ctg cat ctg agt gac aaa gtc tac aga aac tcc tgg gag	596
Leu Asn Ala Leu His Leu Ser Asp Lys Val Tyr Arg Asn Ser Trp Glu	
145 150 155 160	
cag acc cgg gct ggc agt tat gac ttc agg ctg gat gcc atc ccc ttc	644
Gln Thr Arg Ala Gly Ser Tyr Asp Phe Arg Leu Asp Ala Ile Pro Phe	
161 166 171 176	
cag act gcc cgg gca tct agg gag atc gcc agt gat ttc cgg tac aaa	692
Gln Thr Ala Arg Ala Ser Arg Glu Ile Ala Ser Asp Phe Arg Tyr Lys	
177 182 187 192	
gag gct ttc ctg cgg gac cga ggc ctg cag atc ggg tac cgc agt gtc	740
Glu Ala Phe Leu Arg Asp Arg Gly Leu Gln Ile Gly Tyr Arg Ser Val	
193 198 203 208	
gac gat gac cca agg atg aag cat ttc ctc aac gtt ggc agg ctc cag	788
Asp Asp Asp Pro Arg Met Lys His Phe Leu Asn Val Gly Arg Leu Gln	
209 214 219 224	
agt gac aat gag tac aag aag gac ttt gcc aag agt cgg tcc cag ttt	836
Ser Asp Asn Glu Tyr Lys Lys Asp Phe Ala Lys Ser Arg Ser Gln Phe	
225 230 235 240	
cac agc agc aca gac cag ccc ggc ctc ctt cag gcc aag agg agc cag	884
His Ser Ser Thr Asp Gln Pro Gly Leu Leu Gln Ala Lys Arg Ser Gln	
241 246 251 256	
cag ctg gcc agt gat gtg cac tac agg cag ccc ctg ccc cag ccc acc	932
Gln Leu Ala Ser Asp Val His Tyr Arg Gln Pro Leu Pro Gln Pro Thr	
257 262 267 272	
tgc gac ccg gag cag ctg ggc ctc agg cat gct cag aag gcc cac cag	980
Cys Asp Pro Glu Gln Leu Gly Leu Arg His Ala Gln Lys Ala His Gln	
273 278 283 288	
ctg cag agt gat gtc aag tat aaa tca gac ttg aac ctg acc aga ggt	1028
Leu Gln Ser Asp Val Lys Tyr Lys Ser Asp Leu Asn Leu Thr Arg Gly	
289 294 299 304	
gtt ggc tgg acc cct cct ggc tcc tac aaa gtg gaa atg gct cgg cgg	1076
Val Gly Trp Thr Pro Pro Gly Ser Tyr Lys Val Glu Met Ala Arg Arg	
305 310 315 320	
gct gcg gaa ctg gcc aac gca agg ggc ctg ggt ctc cag gga gct tac	1124
Ala Ala Glu Leu Ala Asn Ala Arg Gly Leu Gly Leu Gln Gly Ala Tyr	
321 326 331 336	
cgg ggg gca gaa gca gtg gag gct gga gat cat cag agt ggg gag gtg	1172
Arg Gly Ala Glu Ala Val Glu Ala Gly Asp His Gln Ser Gly Glu Val	
337 342 347 352	
aac cca gat gcc act gag att ctg cac gtc aaa aag aag aag gcc ctg	1220

Asn Pro Asp Ala Thr Glu Ile Leu His Val Lys Lys Lys Lys Ala Leu  
 353 358 363 368

ctg ttg tga gccatgt ccaccctgat tcctgagagg ccagagagga agtttgttca 1276  
 Leu Leu \*  
 369

ccagagacag gottcagatg gctttgattt cggcaagctg gaatggccca ccagcccatc 1336

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 gacaagctgc ggctcagccc cactgacctt ggctcctgcc cgccctgcgg cccctgcccc 180  
 atcccgaagc cggcagccag aggcaggcgc cagagtcaag actggggcaa gagtgcagag 240  
 aggctgctac aagccgtgga aaacaacgat gcacctcggg tggccgcctt catcgccgcg 300  
 aaggggctgg tgcccacgaa gctagacccc gagggcaagt ccgcgttcca cctggcgggc 360  
 atgccccgtg cggccagctg tctggaggtg atgatagctc atggcagcaa tgtcatgagc 420  
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 ttgaagcaac tactgcaggc ttctgcgtg gtggacgtcg tggacagcag cgggtggact 540  
 gccctacacc atg cag ggg tgg att gcc cta gca gcg gct ggt ggc tgt 589  
 Met Gln Gly Trp Ile Ala Leu Ala Ala Ala Gly Gly Cys  
 1 5 10

ctc tcc tgc tca gag gtg ctc tgc tcc ttt aag gca cat cta aac ccc 637  
 Leu Ser Cys Ser Glu Val Leu Cys Ser Phe Lys Ala His Leu Asn Pro  
 14 19 24 29

caa gat cgg tca ggc gca aca ccc ctc att ata gca gct cag atg tgt 685  
 Gln Asp Arg Ser Gly Ala Thr Pro Leu Ile Ile Ala Ala Gln Met Cys  
 30 35 40 45

cac aca gac ctg tgc cgt ctc cta ctg cag caa ggg gct gcc gcg aac 733  
 His Thr Asp Leu Cys Arg Leu Leu Leu Gln Gln Gly Ala Ala Ala Asn  
 46 51 56 61

gat cag gac ctg caa ggc agg acg gcc ctg atg ctg gcc tgt gag ggg Asp Gln Asp Leu Gln Gly Arg Thr Ala Leu Met Leu Ala Cys Glu Gly 62 67 72 77	781
gcc agc ccc gaa aca gtg gag gtc ctg ctg cag ggc gga gcc cag ccg Ala Ser Pro Glu Thr Val Glu Val Leu Leu Gln Gly Gly Ala Gln Pro 78 83 88 93	829
ggc atc acc gat gcg ctg ggg cag gac gcg gct cac tat ggc gcc ctg Gly Ile Thr Asp Ala Leu Gly Gln Asp Ala Ala His Tyr Gly Ala Leu 94 99 104 109	877
gcg ggg gac aaa ctc atc ctg cac ctt ctg caa gag gcg gcc cag cgc Ala Gly Asp Lys Leu Ile Leu His Leu Leu Gln Glu Ala Ala Gln Arg 110 115 120 125	925
ccc tcc cca ccc agc gcc ctc aca gag gat gat tca ggc gag gcg tca Pro Ser Pro Pro Ser Ala Leu Thr Glu Asp Asp Ser Gly Glu Ala Ser 126 131 136 141	973
tct cag aac tct atg tcc agc cat gga aag cag ggg gcc ccc aag aag Ser Gln Asn Ser Met Ser Ser His Gly Lys Gln Gly Ala Pro Lys Lys 142 147 152 157	1021
cgg aag gcg cct cca cct ccc gcc agc att ccc atg ccg gat gat cga Arg Lys Ala Pro Pro Pro Pro Ala Ser Ile Pro Met Pro Asp Asp Arg 158 163 168 173	1069
gat gcc tat gag gag atc gtg agg ctg cgg cag gag agg ggc cgc ctc Asp Ala Tyr Glu Glu Ile Val Arg Leu Arg Gln Glu Arg Gly Arg Leu 174 179 184 189	1117
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gag tcc ccg gag gcc agc tcc ctg cac atc ctg gag aga cag gtg caa Glu Ser Pro Glu Ala Ser Ser Leu His Ile Leu Glu Arg Gln Val Gln 206 211 216 221	1213
gag cta cag cag ttg ctg gtg gag aga caa gag gag aag gag agc ctg Glu Leu Gln Gln Leu Leu Val Glu Arg Gln Glu Glu Lys Glu Ser Leu 222 227 232 237	1261
gga cgg gag gtg gag agt ttg cag agc cgg ctg tcc ctg ctg gag aac Gly Arg Glu Val Glu Ser Leu Gln Ser Arg Leu Ser Leu Leu Glu Asn 238 243 248 253	1309
gag cgg gag aat act agc tat gac gta acc acc ctg cag gat gag gag Glu Arg Glu Asn Thr Ser Tyr Asp Val Thr Thr Leu Gln Asp Glu Glu 254 259 264 269	1357
ggt gag ctg cct gac ctt cca ggg gcc gag gtg ctg ctg tcc aga caa Gly Glu Leu Pro Asp Leu Pro Gly Ala Glu Val Leu Leu Ser Arg Gln 270 275 280 285	1405

ctc agt ccg tcg gcc cag gaa cac ctg gcc tcg ctg cag gaa cag gtg	1453
Leu Ser Pro Ser Ala Gln Glu His Leu Ala Ser Leu Gln Glu Gln Val	
286 291 296 301	
gct gtg ctc acc aga cag aac cag gaa ctg atg gag aag gtc cag atc	1501
Ala Val Leu Thr Arg Gln Asn Gln Glu Leu Met Glu Lys Val Gln Ile	
302 307 312 317	
ctg gag aac ttt gag aag gac gag aca cag atg gaa gtg gaa gct ttg	1549
Leu Glu Asn Phe Glu Lys Asp Glu Thr Gln Met Glu Val Glu Ala Leu	
318 323 328 333	
gca gag gtc att cct ctt gcc ctt atg aat ctc tct cgg gcc gag ttt	1597
Ala Glu Val Ile Pro Leu Ala Leu Met Asn Leu Ser Arg Ala Glu Phe	
334 339 344 349	
gac cat ttc gca ggc aca cgc ttg agc ctt gag gcc ctg agg cag cag	1645
Asp His Phe Ala Gly Thr Arg Leu Ser Leu Glu Ala Leu Arg Gln Gln	
350 355 360 365	
gag aca cga gat gtc ccc aga gaa tag gggcc acctgtggga gagtgaggtg	1697
Glu Thr Arg Asp Val Pro Arg Glu *	
366 371	
ctgagccacg ccaact	1712

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tggtcacgcc cgtcaccaac ggcttaccgg atcgtttcac agtaagccct acgatgaaat	240
gtgacaaaaa ttgactttat tcagcaaaaa tgaaaatcag cccgctgaat atgtaacatt	300
aattaacccg aacaatacgg gcaaaaaaca ttcatgataa aaatatattat tggtcattat	360
attaacgtat tttatagcac tgccgatatc acgctcaaaa aacaaccact gctattttta	420
gcaaagctta tgggtatactc cgccgcctta acatttttca ccgcaaattt tcattgcaac	480
atgacgagga aaataa atg agt acg cct gat ttt tct act gcc gag aat	529
Met Ser Thr Pro Asp Phe Ser Thr Ala Glu Asn	

1

5

aat caa gaa ctg gca aat gaa gtc tcc tgc ctg aaa gcg atg ctg acg 577  
 Asn Gln Glu Leu Ala Asn Glu Val Ser Cys Leu Lys Ala Met Leu Thr  
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ctg atg ctg cag gcg atg gga caa gct gac gcg ggc cgc gtg atg tta 625  
 Leu Met Leu Gln Ala Met Gly Gln Ala Asp Ala Gly Arg Val Met Leu  
 28 33 38 43

aag atg gaa aaa cag ctt gcg ctg atc gaa gac gaa acc cag gct gca 673  
 Lys Met Glu Lys Gln Leu Ala Leu Ile Glu Asp Glu Thr Gln Ala Ala  
 44 49 54 59

gta ttt tcc aaa acg gtt aag caa att aaa caa gcc tac cgt cag taa 721  
 Val Phe Ser Lys Thr Val Lys Gln Ile Lys Gln Ala Tyr Arg Gln \*  
 60 65 70 75

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aaagagatca aattaagcca gtagcggccg ct 813

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<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (541)..(1080)

<400> 1103

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cgtatttttg ggccggtaac tcgtgagctt cgtagtgaga agttcatgaa aattatctct 180

ctggcaccag aagtactcta aggagcgaat catggcagcg aaaatccgtc gtcatgacga 240

agttatcgtg ttaaccggta aagataaagg taaacgcggg aaagttaaga atgtcctgtc 300

ttccggcaag gtcattgttg aaggatatcaa cctggttaag aaacatcaga agccggttcc 360

ggccctgaac caaccgggtg gcatcggtga aaaagaagcc gctattcagg tttccaacgt 420

agcaattttc aatgcggcaa ccggcaaggc tgaccgtgta ggcttttagat tcgaagacgg 480

taaaaaagtc cgtttcttca agtetaacag cgaaactatc aagtaatttg gagtagtacg 540

atg gcg aaa ctg cat gat tac tac aaa gac gaa gta gtt aaa aaa ctc 588  
 Met Ala Lys Leu His Asp Tyr Tyr Lys Asp Glu Val Val Lys Lys Leu

1

5

10

15



atg act gag ttt aac tac aat tct gtc atg caa gtc cct cgg gtc gag	636
Met Thr Glu Phe Asn Tyr Asn Ser Val Met Gln Val Pro Arg Val Glu	
17 22 27 32	
aag atc acc ctg aac atg ggt gtt ggt gaa gcg atc gct gac aaa aaa	684
Lys Ile Thr Leu Asn Met Gly Val Gly Glu Ala Ile Ala Asp Lys Lys	
33 38 43 48	
ctg ctg gat aac gca gca gca gac ctg gca gca atc tcc ggt caa aaa	732
Leu Leu Asp Asn Ala Ala Ala Asp Leu Ala Ala Ile Ser Gly Gln Lys	
49 54 59 64	
ccg ctg atc acc aaa gca cgc aaa tct gtt gca ggc ttc aaa atc cgt	780
Pro Leu Ile Thr Lys Ala Arg Lys Ser Val Ala Gly Phe Lys Ile Arg	
65 70 75 80	
cag ggc tat ccg atc ggc tgt aaa gta act ctg cgt ggc gaa cgc atg	828
Gln Gly Tyr Pro Ile Gly Cys Lys Val Thr Leu Arg Gly Glu Arg Met	
81 86 91 96	
tgg gag ttc ttt gag cgc ctg atc act att gct gta cct cgt atc cgt	876
Trp Glu Phe Phe Glu Arg Leu Ile Thr Ile Ala Val Pro Arg Ile Arg	
97 102 107 112	
gac ttc cgt ggc ctg tcc gct aag tct ttc gac ggt cgt ggt aac tac	924
Asp Phe Arg Gly Leu Ser Ala Lys Ser Phe Asp Gly Arg Gly Asn Tyr	
113 118 123 128	
agc atg ggt gtc cgt gag cag atc atc ttc cca gaa atc gac tac gat	972
Ser Met Gly Val Arg Glu Gln Ile Ile Phe Pro Glu Ile Asp Tyr Asp	
129 134 139 144	
aaa gtc gac cgc gtt cgt ggt ttg gat att acc att acc act act gcg	1020
Lys Val Asp Arg Val Arg Gly Leu Asp Ile Thr Ile Thr Thr Thr Ala	
145 150 155 160	
aaa tct gac gaa gaa ggc cgc gct ctg ctg gct gcc ttt gac ttc ccg	1068
Lys Ser Asp Glu Glu Gly Arg Ala Leu Leu Ala Ala Phe Asp Phe Pro	
161 166 171 176	
ttc cgc aag taa ggt aggggttacta aatgggctaag caatcaatga aagcacgcga	1123
Phe Arg Lys *	
177	
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<210> 1104  
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 <212> DNA  
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<220>

<221> CDS

<222> (251)..(1300)

<400> 1104

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atgggcctct tggaacattg gtgtgttcat ctgcattcga tgtgctggaa tccacaggaa	180
tctgggggtg cacatatcca gggtaaagtc agttaacctc gaccagtgga ctcaagaaca	240
gattcagtgc atg caa gag atg gga aat gga aag gca aac cga ctt tat	289
Met Gln Glu Met Gly Asn Gly Lys Ala Asn Arg Leu Tyr	
1 5 10	
gaa gcc tat ctt cct gag acc ttt cgg cga cct cag atg gac cca gct	337
Glu Ala Tyr Leu Pro Glu Thr Phe Arg Arg Pro Gln Met Asp Pro Ala	
14 19 24 29	
gtt gaa gga ttt att cga gac aaa tat gag aag aag aaa tac atg gac	385
Val Glu Gly Phe Ile Arg Asp Lys Tyr Glu Lys Lys Lys Tyr Met Asp	
30 35 40 45	
cga agt ctg gac atc aat gcc ttt agg aaa gaa aaa gat gac aag tgg	433
Arg Ser Leu Asp Ile Asn Ala Phe Arg Lys Glu Lys Asp Asp Lys Trp	
46 51 56 61	
aaa aga ggg agc gaa cca gtt cca gaa aaa aaa ttg gaa cct gtt gtt	481
Lys Arg Gly Ser Glu Pro Val Pro Glu Lys Lys Leu Glu Pro Val Val	
62 67 72 77	
ttt gag aag gtg aaa atg cca cag aaa aaa gaa gac cca cag cta cct	529
Phe Glu Lys Val Lys Met Pro Gln Lys Lys Glu Asp Pro Gln Leu Pro	
78 83 88 93	
cgg aaa agc tcc ccg aaa tcc aca gcg cct gtc atg gat ttg ttg ggc	577
Arg Lys Ser Ser Pro Lys Ser Thr Ala Pro Val Met Asp Leu Leu Gly	
94 99 104 109	
ctt gat gct cct gtg gcc tgc tcc att gca aat agt aag acc agc aat	625
Leu Asp Ala Pro Val Ala Cys Ser Ile Ala Asn Ser Lys Thr Ser Asn	
110 115 120 125	
acc cta gag aag gat tta gat ctg ttg gcc tct gtt cca tcc cct tct	673
Thr Leu Glu Lys Asp Leu Asp Leu Leu Ala Ser Val Pro Ser Pro Ser	
126 131 136 141	
tct tcg ggt tcc aga aag gtt gta ggt tcc atg cca act gca ggg agt	721
Ser Ser Gly Ser Arg Lys Val Val Gly Ser Met Pro Thr Ala Gly Ser	
142 147 152 157	
gcc ggc tct gtt cct gaa aat ctg aac ctg ttt ccg gag cca ggg agc	769
Ala Gly Ser Val Pro Glu Asn Leu Asn Leu Phe Pro Glu Pro Gly Ser	
158 163 168 173	
aaa tca gaa gaa ata ggc aag aaa cag ctc tct aaa gac tcc att ctt	817

JCS41 U.S. PRO  
10/037270



Lys Ser Glu Glu Ile Gly Lys Lys Gln Leu Ser Lys Asp Ser Ile Leu	
174 179 184 189	
tca ctg tat gga tcc cag acg cct caa atg cct act caa gca atg ttc	865
Ser Leu Tyr Gly Ser Gln Thr Pro Gln Met Pro Thr Gln Ala Met Phe	
190 195 200 205	
atg gct ccc gct cag atg gca tat ccc aca gcc tac ccc agc ttc ccc	913
Met Ala Pro Ala Gln Met Ala Tyr Pro Thr Ala Tyr Pro Ser Phe Pro	
206 211 216 221	
ggg gtt aca cct cct aac agc ata atg ggg agc atg atg cct oca cca	961
Gly Val Thr Pro Pro Asn Ser Ile Met Gly Ser Met Met Pro Pro Pro	
222 227 232 237	
gta ggc atg gtt gct cag cca gga gct tct ggg atg gtt gcc ccc atg	1009
Val Gly Met Val Ala Gln Pro Gly Ala Ser Gly Met Val Ala Pro Met	
238 243 248 253	
gcc atg cct gca ggc tat atg ggt ggc atg cag gca tca atg atg ggt	1057
Ala Met Pro Ala Gly Tyr Met Gly Gly Met Gln Ala Ser Met Met Gly	
254 259 264 269	
gtg ccg aat gga atg atg acc acc cag cag gct ggc tac atg gca ggc	1105
Val Pro Asn Gly Met Met Thr Thr Gln Gln Ala Gly Tyr Met Ala Gly	
270 275 280 285	
atg gca gct atg ccc cag act gtg tat ggg gtc cag oca gct cag cag	1153
Met Ala Ala Met Pro Gln Thr Val Tyr Gly Val Gln Pro Ala Gln Gln	
286 291 296 301	
ctg caa tgg aac ctt act cag atg acc cag cag atg gct ggg atg aac	1201
Leu Gln Trp Asn Leu Thr Gln Met Thr Gln Gln Met Ala Gly Met Asn	
302 307 312 317	
ttc tat gga gcc aat ggc atg atg aac tat gga cag tca atg agt ggc	1249
Phe Tyr Gly Ala Asn Gly Met Met Asn Tyr Gly Gln Ser Met Ser Gly	
318 323 328 333	
gga aat gga cag gca gca aat cag act ctc agt cct cag atg tgg aaa	1297
Gly Asn Gly Gln Ala Ala Asn Gln Thr Leu Ser Pro Gln Met Trp Lys	
334 339 344 349	
taa aaacaaaaca cctgtaaaaa aaaaaaa	1327
*	
350	